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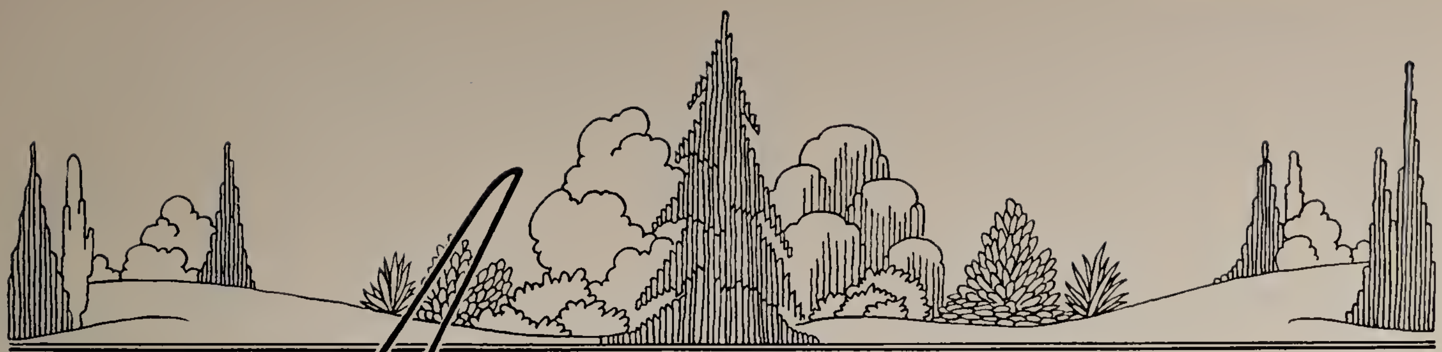

The Arboretum Bulletin

Winter Work in the Arboretum

Brian O. Mulligan

OUR last report brought the tale of development and progress in the Arboretum up to November 1947. Since then work has been chiefly concentrated on the clearance and preparation of more land for planting purposes, either this spring or next fall, but in addition considerable time has been occupied in such tasks as the setting up of the Christmas tree for illumination, with the cleaning of the surrounding areas including the long pool by the Boulevard, in felling, cutting up and removing many partly dead maple, ash, hemlock and dogwood trees, as the stack of sawn wood near the northern entrance attests, in improving the Montlake section by removal of an unsightly mound and group of *Chamaecyparis* on it as well as certain other adjacent trees in poor condition, in further clearance of brambles and scrub on Foster's Island, and in many other lesser ways.

The chief areas where more ground has been opened up and either has already been or soon will be made fit for planting are in the magnolia section on the west side of the Upper Road just south of the nursery boundary, in Woodland Garden to the north, on the slopes north of Rhododendron Glen, in the area allotted to the holly family halfway between Rhododendron Glen and the south end of the Upper Road (again on its west side), along Azalea Way, and in the Pinetum between the Boulevard and the western boundary of the Arboretum, from East Lynn to East Newton Street.

The largest sections are those intended for the magnolias, hollies, and in the Pinetum. Few magnolias are available in the nursery at present, but thanks to supplies of seeds received from very good friends in England, as well as here in Seattle, we have considerable hopes for future displays. We already possess quite a varied assortment of hollies, which will soon be considerably augmented by the large collection, principally of varieties of the American Holly *(Ilex opaca)*, now on order from an Eastern nursery, generously to be given us by the State Conservation Society. In the Pinetum we are now planting a number of different species or varieties of *Cupressus, Chamaecyparis, Thuja,* and *Juniperus* from our own nurseries, and have also initiated the first plantings in the same area of the *Euonymus* family, chiefly represented by the Spindle-trees, whose berries should provide us with some welcome color in the fall and early winter months.

Rhododendron Glen

Of the lesser areas mentioned, those north of Rhododendron Glen are perhaps the most important. Here we have moved all our plants of the *Thomsonii* series from a sunny bank to a much shadier slope further north, placing among them some native firs *(Abies amabilis)* and specimens of one of the Silver-bell or Snowdrop trees, *Halesia monticola,* which latter, if they thrive as we expect them to do, should present a lovely spectacle when in flower in the future. The former *Rhododen-*

dron Thomsonii bank is now occupied by the small booth (both in stature and number of species) *Glaucum* series, which is likely to appreciate such an open site. Just above it we shall plant the somewhat similar *Lepidotum* series, and on the larger area on the steep bank to the south members of the Triflorum series, with the dwarf *Lapponicum* species in the foreground, and the *Erica australis* and other heathers to unite it with the neighboring older planting of these small evergreen shrubs.

Continuing north from Rhododendron Glen, the important and beautiful *Fortunei* series of rhododendrons, placed here in earlier years, has been partially rearranged and some additions made, so that the species are now grouped together and should consequently make an increasingly fine display for many springs to come. Beyond these come the *Thomsonii* and *Campylocarpum* rhododendrons, the latter nearer the top of the bank. Below them is the now completed Garrett Memorial Planting, mentioned in our last report, and due north of this a triangular bed of about the same size which has been thoroughly prepared to receive all our available species of *Kalmia* (Mountain Laurel), *Pieris,* of which at present we possess four kinds, and the related genera such as *Lyonia, Leucothoe,* and *Zenobia.*

At the top of the bank beside the Upper Road two other small beds are being made ready for species of *Gaultheria, Pernettya,* and probably some of the Californian species of *Arctostaphylos* (Manzanita) which enjoy a dry and sunny location.

A large new bed was dug in early December on the west side of Azalea Way, nearly opposite the lower end of Woodland Garden and facing the Boulevard. This will be planted a little later when the ground is drier with a variety of azaleas, to provide as gay a patch of color over as long a period as possible. On the east side, farther south, three older beds have been cleaned or extended, two near the trail leading up to the magnolias, one nearer the e/ north end. All these will giv/ us much needed space for planting out the accumulated azaleas now in the nursery and lath-houses.

Our thanks are once again due to the Seattle Garden Club for its support of one of our men for a month to enable this and other work along Azalea Way to be accomplished.

Woodland Garden

This has been considerably thinned of surplus willow, alder, maple and other trees and thereby greatly improved, admitting more light and air, though not too much for the wellbeing of the plants, and allowing a view through from the Upper Road across Azalea Way, over the invisible Boulevard, to the Pinetum beyond. The West Seattle Garden Club has presented us with two dozen plants of the Christmas Rose *(Helleborus niger)* to be planted here, and preparations are also being made to receive a collection of ferns which we have been promised in the near futre for this most suitable site.

The bank on the northern side at the lower western end of Woodland Garden has also received a very necessary cleaning and digging, thus showing off the Cornelian Cherry *(Cornus Mas)* and *Daphne Mezereum* plants now flowering there.

Other Plantings

This has not, partly owing to the weather and partly to our other preoccupations, been so extensive as in the fall months, but the following are some of the principal new developments.

Approximately 50 plants of *Clematis,* chiefly species but including some hybrids have been placed against the Broadmoor boundary fence, from the camellia collection at the head of Rhododendron Glen as far north as the "Army Garden" nursery section. We expect to plant the Leguminosae, or pea family, collection in this area during March, as soon as preparation of the ground and of the planting plan have been completed. On the other side of the Upper Road, 12 plants of the yellow shrubby *Paeonia lutea,* a gift from Mrs. O. B. Thorgrimson, have been added in the peony dell.

The Memorial Planting Fund has been utilized for the purchase of some well-grown Japanese Cherry and Crab apple trees; the former have been placed around Rhododendron Glen, to increase the small number of these superb flowering trees already there, and include the varieties Yoshino, Shirotae, and Torano-o. On the west side of the Boulevard near the junction with Interlaken Boulevard, three trees of the soft pink, double Fugenzo are now in position.

The crab apples will be utilized when forming the collection of these trees on the new area being developed at the northern end of the Arboretum, close to the Boulevard and Miller Street.

The nucleus of an assemblage of *Cornus* (Dogwood) shrubs, especially those with colored stems and white, black, or blue berries, has been planted between the Boulevard and Azalea Way in a damp and rather heavy soil, south of the Boyer Street junction. At present we possess only nine species but as this is likely to be considerably increased in the future space has been allowed for expansion. The more ornamental flowering dogwoods are located on the higher ground, especially around Rhododendron Glen and along Azalea Way.

The conifers in the Pinetum have already been mentioned, but additional young plants of Douglas firs have been placed in several areas near the Upper Road, and more hemlocks and spruces are likely to be added in the magnolia section.

Four trees of *Halesia monticola,* three each of *Sassafras,* and a handsome golden form of Lawson Cypress, together with three plants of *Magnolia Soulangeana Brozzonii,* the finest variety of this hybrid, to be located near the foot of Rhododendron Glen, were generously presented to the Arboretum by the Seattle Garden Club.

New Building

The wooden building briefly mentioned in the Winter issue of the BULLETIN (p. 22) is now not only well and truly sited behind the offices but is so far advanced in its internal fittings that it is expected to be ready for use and occupancy by the beginning of March. The increase of space and facilities it will provide in our present crowded state will be most useful, although it will by no means solve the problem of storing equipment, office supplies and so on.

Acquisitions

Some of the donations from various good friends of the Arboretum have already been noted.

Of others, Mercer Island Garden Club has very kindly given us $150.00 to obtain a supply of peat for some of our newly dug beds, especially those where light sandy or gravelly soil predominates, as at the head of Rhododendron Glen. This will give these new plantings a better start and certainly improve the condition of the soil.

One of the most outstanding purchases, by the Arboretum Foundation, is the new Hardie trailer sprayer, to be drawn by truck or tractor, fitted with a 200-gallon tank and 6 H.P. motor capable of spraying 10 gallons a minute. This will allow us to spray expeditiously and easily both trees and shrubs which may be attacked by pests or diseases, as well as weeds to be destroyed in vacant ground or in grass. This is a tool which the Arboretum has urgently needed for some time, and will unquestionably be of great value to us in the future.

Some interesting, useful or attractive plants and seeds have come to us during this winter. Mr. H. L. Collier, City Treasurer, has given us 15 plants of various kinds of Japanese Cherries, propagated in his own garden. From Mr. A. M. Wilson in Wales we received 50 corms of the uncommon Abyssian *Acidanthera Murielae,* a striking plant closely related to gladiolus; from Mr. W. B. Clarke of San Jose, California, came a plant of the brilliant climbing Rose "Ramona," and from Victoria, B. C., we acquired plants of Rose "Mermaid," the most beautiful single yellow hybrid, and of *Viburnum fragrans,* previously scarcely represented in the Arboretum.

Several consignments of seeds of notable or desirable plants, chiefly trees or shrubs, have arrived from friends in England, one from a Japanese Botanic Garden, one (via the American Rhododendron Society) of rhododendron seeds collected by Dr. Rock in China, and of course those of the unique and well-publicized Chinese coniferous tree, *Metasequoia glyptostroboides,* from Dr. E. D. Merrill of Harvard

(Continued on Page Thirty-nine)

Dean Hugo Winkenwerder, 1878-1947

Hugo Winkenwerder

1878-1947

Gordon D. Marckworth*

HUGO WINKENWERDER, '07, Dean Emeritus, College of Forestry, University of Washington, died on November 30, 1947. While he had been in poor health for some time, his death was unexpected. He was born in Watertown, Wisconsin, on March 16, 1878. He attended Northwest College at Watertown and later the University of Wisconsin, from which he was graduated in 1902 with a bachelor's degree in science. From 1902 until 1905 he was the science instructor at the Sheboygan High School. In 1905 he entered Yale University as a graduate student in the School of Forestry and was awarded his master's degree in forestry in 1907.

Following his graduation, he entered the U. S. Forest Service and was stationed in Washington, D. C., where he had charge of forestry education. In 1908, he joined the faculty of Colorado College as assistant professor of forestry. He came to the University of Washington as associate professor of forestry in 1909, and on August 1, 1912, was appointed dean of the College of Forestry in which capacity he served until 1945. At that time he requested that he be relieved of some of his responsibilities and in recognition of his many years of loyal service, he was given the title of Dean Emeritus by the Board of Regents. From April 1, 1933, until August 1, 1934, he was the acting president of the University. His contributions to the University and to the College of Forestry were many. Under his administration, Anderson Hall and the Forest Products Laboratory were built. In 1925 he secured from Mr. Charles Lathrop Pack sufficient funds to set up the Pack Demonstration Forest at La Grande, Washington. This forest, originally 420 acres in size, was expanded later to 2200 acres when he secured additional funds from Mr. Pack. In the early thirties he became interested in establishing an Arboretum which would serve the University and the Northwest. Largely through his efforts, the University of Washington Arboretum was established and he served as its first director from 1934 to 1938.

His interests were not confined to the campus of the University, for he was active in forestry matters throughout the state and the nation. He was always closely identified with the State Development Committee of the Seattle Chamber of Commerce, serving as its chairman as well as chairman of the forestry sub-committee. It was largely through this committee that he was instrumental in organizing the Washington State Forestry Conference. As its president for almost a quarter of a century, he had much to do in guiding the forestry policy and legislative programs of the state.

He was always interested in the affairs of his profession and was an active member of the Society of American Foresters. He served as chairman of the Puget Sound Section and also as a member and chairman of many other committees of the Section. From 1932 until 1938, he was a member of the Council of the Society of American Foresters. In 1940, he was honored by that organization by being elected a Fellow. When the Pack Forest Education Board was set up in 1930, he was appointed as one of its directors and served in that capacity until 1939.

During his years as dean, he built up the College of Forestry at the University of Washington from a small beginning to one of the outstanding forestry schools in the country. Through a staff of men of recognized ability and through the graduates of the College of Forestry who came under his influence, his leadership has been felt in developing the forestry profession throughout the state and the nation. Through his writing in newspapers, magazines and books, he has influenced countless others.

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* Mr. Gordon D. Marckworth, successor to Mr. Hugo Winkenwerder as Dean of the College of Forestry, University of Washington, was graduated from the University in 1917.

The Arthur Hoyt Scott Horticultural Foundation

John C. Wister*

SWARTHMORE College was founded just after the Civil War. The level area of the campus, about 75 acres, had been a cornfield. On this the only trees were two magnificent century-old black oaks. Adjoining the campus were hillsides dropping abruptly to the winding Crum Creek more than 100 feet below the level of the campus. Native forest growth covered these hillsides and bordered the creek for nearly a mile.

The different exposures, soils and drainage conditions made ideal places for many different plants. Here, before 1930, botanists enumerated over 200 native species of trees, shrubs and wild flowers. On the campus proper the Quaker founders had planted specimen trees of native trees like hemlock, white pine, various oaks, sugar maples, as well as exotic trees such as Norway spruce, European linden, purple beech, Norway maple and horse chestnut. Between 1900 and 1920 there had been added a few magnolias, apples, pears, cherries, lilacs, spiraeas, mock oranges and hydrangeas. The total species on the upper campus at that time hardly represented over three or four dozen, but the number of individual trees and shrubs ran into the hundreds. Some of these had grown into magnificent specimens but most of them had been haphazardly placed and could not be seen to the best advantage.

About 1920 Arthur Hoyt Scott, an alumnus of the class of 1895, expressed to the college authorities his desire for the improvement of the college grounds by the cutting of some of the poorer trees and the planting of a greater variety of new trees and shrubs.

His appeal encouraged Professor Samuel C. Palmer, head of the botany department, to recommend that an arboretum and botanical garden be established on the college grounds. He prepared a detailed report for the board of managers. He showed how ideal, from the point of view of climate, topography and soil, the college property was for the growth of many different kinds of plants. He quoted the need of the botany department for an outdoor laboratory of plants and the need of a scientific garden in the Philadelphia area where interested persons might see the many different plants hardy in the climate.

The board of managers accepted the report in principle. Based on the knowledge that the endowments of the Arnold Arboretum, the New York, Brooklyn and Missouri Botanical Gardens ran into the millions, they felt that an arboretum and botanical garden to include all hardy plants would be too large and expensive for Swarthmore College to undertake.

Mr. Scott, who was an ardent gardener and at the same time an official of both the American Peony Society and the American Iris Society, appreciated the need for a botanical garden but was more interested in providing, for the general public, some smaller visual demonstration of the many fine hardy garden plants that could be grown in the Philadelphia region. He felt that most gardeners limited themselves to very few species and varieties of plants because they had not had an opportunity to learn of the many other kinds which would make their gardens much more attractive the year around. He believed that a practical garden of this type could be established on the college grounds and properly cared for without a great increase in the amount of money then available and authorized for the care of the college grounds. He was planning to organize a group of prominent alumni to raise funds for such a project when he became ill. He died in 1927.

But such a glorious vision could not die. He had so inspired his family and his friends with the idea that in 1929, Mrs. Scott and his sister and brother-in-law, Mr. and Mrs. Owen Moon, and a few others gave to the college an initial endowment for the foundation which was to be his memorial and to bear his name.

The purpose of this foundation was "to promote horticulture in its broadest sense." Much deliberation and careful planning followed. Outstanding botanists and horticulturists gave their advice. As the endowment was small (at first $50,000, and now increased to slightly over $100,000), complete botanical collections such as those of the Arnold Arboretum or the Missouri Botanical Garden could not be attempted. It seemed, however, to be practical to plant on the college grounds collections of limited numbers of hardy trees and shrubs and flowers suitable for planting in private gardens in the climate of Pennsylvania. The number of species would be limited by selecting, in any one genus, only the most important species from an ornamental point of view. This would eliminate many hundreds of species, important to the scientific botanist, but not to the ordinary gardener. To help the student in understanding botanical relationships, most of the new trees and shrubs were planted in botanical sequence in a great circle running around the campus. This begins with ginkgos, yews, conifers and continues to the honeysuckles and composites. It includes about 100 families, about 400 genera, about 1000 wild species and about 4000 varieties. Some of the most important groups comprise about the following number of species and varieties:

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* Mr. John C. Wister is Director of the Arthur Hoyt Scott Horticultural Foundation at Swarthmore College. His article is the fifth in our series on outstanding Arboreta and Botanical Gardens in America.

Woody Plants	*Species*	*Varieties*
Acer	20	5
Berberis	15	5
Chaenomeles	3	30
Cotoneaster	18	8
Crataegus	20	3
Deutzia	2	15
Hedera	5	25
Ilex	12	50
Juniperus	10	30
Lonicera	25	22
Magnolia	10	13
Malus	15	30
Peony (Tree)	3	250
Philadelphus	10	18
Picea	10	10
Pinus	25	10
Prunus	24	90
Quercus	20	—
Rhododendron (True)	25	150
Rhododendron (Azalea)	20	250
Rosa	20	200
Salix	40	20
Spiraea	12	4
Syringa	20	180
Taxus	3	50
Thuja	3	30
Tsuga	3	20
Viburnum	20	5
Wisteria	3	20

Herbaceous Plants	*Species*	*Varieties*
Chrysanthemum	1	100
Ferns	40	—
Hemerocallis	7	100
Iris	8	400
Narcissus	5	400
Peony (Herbaceous)	10	500

Seventeen years is, of course, too short a time to make any appreciable showing with the larger trees. The flowering trees, however, have grown large enough to demonstrate their value in garden planting, and the shrubs and herbaceous plants have long since achieved maturity.

Beginning in early spring, there are displays of bulbous plants like snowdrops, scillas, grape hyacinths and daffodils; of shrubs like forsythia and corylopsis; and of trees like magnolias and cherries. They bloom roughly from mid or late March to late April. In May there the fine collections of flowering apples, dogwoods, lilacs, azaleas, tree peonies and miscellaneous shrubs; and Iris and early hybrid herbaceous peonies. In June rhododendrons, mock oranges, Chinese herbaceous peonies and so forth. In July and August, Sophora, Buddleia, sweet pepper bush, dwarf white horse chestnut and Hemerocallis. September, October and November bring chrysanthemums and the autumn foliage and berries of many trees and shrubs. The attempt has been made to secure the best varieties of each group. All the plants are labeled.

The fame of Swarthmore has spread with each year. Many horticultural societies and garden groups make special visits to see special groups of plants in bloom. The peony collection is especially unique and has attracted the attention of peony growers all over the country. It includes not only the finest named varieties of the Moutan tree peonies but practically all the recently introduced hybrid yellow tree peonies. In addition, there are the early hybrid May-blooming herbaceous peonies which are new and little known and the June-blooming Chinese herbaceous peonies.

Next to the peonies the daffodils are perhaps the best known. The main display garden includes over 350 kinds in groups of 18 bulbs each arranged by season, by type and by color.

(Continued on Page Thirty-five)

Rose Species

I

Brian O. Mulligan*

Writing or talking about the wild roses of the world is on a par with doing the same about rhododendron species. Both are so numerous, vary so much in size and habit, character and requirements that only a book could do the subject full justice.

However, as there seems to be room for some information and details concerning this great genus, which contains so many beautiful and ornamental garden shrubs, and as I have had good opportunity for studying some of the large collections in the south of England in past years, notably those at the R. H. S. Gardens, Wisely, and of the National Rose Society at Hayward's Heath, this condensed account of the group may serve a useful purpose and be helpful.

Distribution and Botanical Classification

It is well first to have some conception of the size of the genus *Rosa* and the extent of the area which it covers. The number of known species has varied greatly with the views of different botanists as to what precisely constitutes a species, but taking a conservative view 125-130 may be distinguished and recognized. Of these approximately 90-100 are Asiatic—western China is one of the chief centers of dispersal, as it is in even greater degree with rhododendrons; about 20 are North American, of which only some half dozen occur west of the Rocky Mountains; the remainder chiefly European, with a few outliers in North Africa, Arabia and Abyssinia.

A good working botanical arrangement and list of described species will be found in Rehder's "Manual of Cultivated Trees and Shrubs," especially in the second (1940) edition. The following is a summary of the groups within the genus, though not set out according to their relationships, which may, however, be indicated.

All roses, with the exception of the rarely cultivated (owing chiefly to its specialized habitat requirements) *Rosa persica* or *Hulthemia persica,* as it might more properly be called, have pinnate leaves with a pair of stipules at the base of each leaf. In *Hulthemia* the leaves are simple (composed of a single leaflet only) and there are no stipules.

Rosa species can be subdivided into two large groups, five smaller and seven others with from one to four species in each.

The large groups are:

1. *Synstylae.* Climbing or trailing roses with hooked thorns, leaflets, 319, generally white flowers in corymbs, the projecting styles of the flowers united into a long column. Most of these are Asiatic in origin and include such superb climbing shrubs as the Musk Rose, *R. moschata,* and the allied *R. Brunonii* from the Himalaya, the Chinese species *R. Helenae, R. filipes, R. cerasocarpa,* and the bushy, glaucous-leaved *R. Soulieana,* as well as the Japanese *R. multiflora,* so much used for stock purposes, and trailing *R. Wichuraiana* with its glossy, semi-evergreen foliage, parent of many of the "Rambler" types which bear its name such as "Albertine," "Francois Juranville," "Excelsa" and "Hiawatha," the European *R. sempervirens* and *R. arvensis,* and many more. In this group G. A. Boulenger recognized and described ("Revision des Roses d' Asie" [1933]) 36 species from Europe, Asia and North Africa; one American species, the Prairie Rose *(R. setigera)* also belongs here, from which a number of hybrids have been derived—"Baltimore Belle," "American Pillar" and the later Horvath productions, "President Coolidge," "Federation," "Doubloons" and others.

2. *Cinnamomeae.* These are all non-climbing shrubs, though often extending by under-

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* This is the first installment of a study prepared by Mr. Brian O. Mulligan, Director of the University of Washington Arboretum.

ground shoots, the stems usually with both straight prickles borne in pairs below the leaves, and bristles, though the latter may not always be evident; leaflets 5-11, flowers in clusters (corymbs), normally some shade of pink, the decorative hips (fruit) in some tone of red or orange-red, with long-persistent, generally upright sepals. Western China and North America are the two chief centers of distribution. Amongst the best for garden purposes from the former area are *R. Davidii* and the very similar *R. caudata,* the elegant, pink, July-flowering *R. multibracteata, R. Moyesii* with blood-red solitary flowers in June, *R. sweginzowii* with very bristly stems and rose-pink flowers, and the taller *R. setipoda* with long flask-shaped hips. *R. Wardii* from Tibet has white flowers with a red "eye." In the U. S. A. are found *R. blanda, R. Woodsii,* with *R. nutkana* and *R. pisocarpa,* both in Washington, and *R. californica,* besides others. A tall and handsome species from the Himalaya is *R. macrophylla,* with exceptionally large, bottle-shaped hips, whence also comes *R. Webbiana* with pink flowers, and from Northeast Asia the well-known *R. rugosa,* with large rose-purple or white flowers, often used as a stock for other roses. In Europe (central and southern) grows *R. pendulina (alpina),* as well as the type species of the group, *R. cinnamomea,* very widely spread in nature from central and northern Europe across northern Asia to Manchuria and Saghalin, but not often seen in gardens.

The smaller groups *Carolinae* and *Gymnocarpae,* are sometimes included with, sometimes separated from "Cinnamomeae. The former comprises about half a dozen eastern North American species, amongst them *R. virginiana,* a useful plant for informal hedges; *R. carolina* with usually solitary rose-pink flowers; the dwarf, bristly stemmed *R. nitida,* with foliage coloring well in fall, and the late-flowering (July) smooth-stemmed *R. foliolosa* from the southern Great Plains region. The spreading or reflexed sepals of the fruit, and the basal position of the seeds within the ovary, have been used to separate roses of this

Rosa Andersonii, one of the dog-rose group, with carmine-rose flowers in bloom from the middle to the end of June.

—Photographed by Mr. Mulligan at Wisley.

group from the *Cinnamomeae,* but these characters have been found by Boulenger (1925) and Erlanson (1934) to be inconstant.

Roses of the *Gymnocarpae* group are easily distinguished by their habit of shedding the calyx from the ripe fruit, leaving a small hole at the top. Perhaps the best known, apart from our shade-loving western American species *R. gymnocarpa,* is the beautiful *R. Willmottiae* from Western China with glaucous stems, solitary bright rose flowers and small, attractive foliage. *R. Beggeriana,* normally seen with white flowers but occasionally pink or cream-colored, is also in cultivation; it is native from Asiatic Turkey through Persia to Central Asia.

3. Of the smaller groups, one of the most important is *Caninae,* including the European Dog-roses and their relatives. *R. canina* is much used as a stock in Europe, the Sweetbriar *(R. elganteria)* and its hybrids with *R. foetida,* the Penzance Briars, is frequently grown in gardens and may be well used to form hedges, as like the rest of the group, their hooked thorns make formidable barriers. Others such as *R. villosa,* the Apple Rose, *R. britzensis* from Kurdistan, *R. rubrifolia* with red-tinged stems and glaucous purplish leaves and the dwarfer *R. Serafinii, R. glutinosa, R. sicula* and the white *R. ferox* with white flowers, all from southern Europe and the Mediterranean shores, are well worth cultivating for their various qualities of flower or fruit, often for both reasons. The sticky dark red hips of *R. glutinosa* have a resinous scent; those of *R. villosa* are bristly and globular like some of the gooseberries. It is a curious fact, reported by Dr. C. C. Hurst in 1929, that *R. canina* and its near relatives will come true to type when raised from seeds, if these are taken from individual or alike plants; he quotes his own experience with *R. Froebelii,* when out of more than 100,000 seedlings only three were hybrids. On the other hand, it is a common experience to find that many rose species when raised from seeds gathered at random, give a most varied progeny, although for garden purposes this is not always a drawback or undesirable, since worthy new hybrids may be picked out and propagated vegetatively. *Rosa Froebelii* (sometimes called *R. laxa* although not the true species of that name) is, according to Hurst (1941) one of the parents of the beautiful *R. alba,* the other being *R. damascena,* which is itself a hybrid of ancient origin derived from *R. gallica.*

4. The small section *Indicae* (or *Chinenses*) centers on *R. chinensis* and is related to the *Synstylae* in the climbing habit and projecting styles of the flowers, although these are free and not united into a column as in the latter; leaflets usually 3-5, occasionally 7 in number. There are only four species known, of which three come from China; the remaining one, *R. gigantea,* is from Manipur, Burma and southwestern China. The wild *R. chinensis* from Ichang in central China is a vigorous climber with single cherry-red flowers, but the cultivated China roses are hybrids derived from *R. indica* crossed with *R. gigantea.* These were grown in China in the 10th century, as evidenced by screen paintings of that period, introduced to Europe (Italy) early in the 16th century, though not into England until 1793, and to the U. S. A. about 1800. *R. gigantea* is a strong climbing plant with creamy-white or pale yellow flowers up to five inches across, and has been responsible for many excellent hybrids, amongst them "Chateau Eleanor," "La Follette" and "Belle of Portugal," as well as the older "Marechal Niel" and "Niphetos."

5. *Gallicanae.* This group, important as one of the basic parents of many of our present-day garden roses, is founded on *R. gallica,* the French Rose, found in the wild state from central Europe to Transcaucasia and Armenia, and having a history which goes back through the Romans and Greeks to the Persians of several centuries B. C. It is the Red Rose of Lancaster in English history. According to the late Dr. Hurst, the Red Gallica Rose known today is the Provins Rose of France, famous for more than 500 years for the quality of its dried and powdered petals, which formed a major export and industry until the latter part of the 19th century. The striped "Rosa

Mundi" is a sport from this known to have been in existence prior to 1583.

Of the other related "species" the Damask Rose *(R. damascena),* of which "York and Lancaster" and "Kazanlik" are representatives, is probably a simple hybrid from *R. gallica,* and the former crossed with *R. canina* gave rise to *R. alba,* another very ancient rose. The Cabbage Rose, placed here also, is of more recent and complex hybrid origin, evolved in Europe between the end of the 16th and beginning of the 18th century.

R. gallica is characterized by the creeping, bristly stems, usually about three feet tall, large oval leaves with only 3-5 leaflets, the solitary red flowers, about three inches in diameter on glandular stalks, followed by nearly globular or somewhat top-shaped brick-red fruits. Hundreds of garden varieties were raised, chiefly in Holland and France, but most of these are now lost, though some still remain in a few gardens and collections.

6. *Pimpinellifoliae.* These include some of the smallest of the wild roses in height, flower and leaf size, but by reason of their great adaptability and hardiness are amongst the most useful, especially for dry places and on poor soils. The stems of several species also travel underground, are both thorny and bristly, often densely so, the small leaflets 5-13 or even 15 in number, flowers solitary, usually white or flushed pink, but yellow in four species; fruits vary both in size, shape and color —black and globose in *R. spinosissima* and *R. pimpinellifolia,* smaller and bright red in *R. Hugonis* and *R. Ecae.*

The absence of bracts at the base of the flower stalk, and the normally solitary flowers, separate all the members of this group from those of the *Cinnamomeae.* Most of them flower early in the season, in May.

At least ten species of this group are in cultivation, which include almost if not quite all that are known to belong to it. The yellow-flowered species are naturally popular for their beauty of coloring and freedom of flowering— the two already mentioned, together with *R. Primula* from Turkestan (introduced 1911)

—Photographed by Mr. Mulligan at Wisley.

***Rosa crocantha,* flowering at the end of June. A near relative of *R. filipes,* probably of Chinese origin.**

with its fragrant foliage and reddish shoots, and the northern Chinese *R. xanthina* forma *spontanea,* certainly the most spectacular member with its 2½-inch wide butter yellow flowers. The dwarf, suckering *R. spinosissima* and its several varieties—*myriacantha, Ripartii,* and the creamy-yellow, bristly-stemmed *hispida* for instance—and hybrids, of which *reversa* and *involuta* are examples, is found on sand-dunes in nature and is excellent therefore in light soils and on steep sandy banks. From this and the following species arose the many varieties of Scots Roses between 1793 and 1825, especially the double types in various tones of rose, crimson, purple, pink and bicolored, as well as white. *R. pimpinellifolia* is a taller, mountain plant best known in the variety *altaica,* having white flowers 2 inches wide; in habit it is an upright bush 5-6 feet tall, very suitable for informal hedging. This is a native of Siberia and the Altai region, introduced to England in 1818.

Bearing pink flowers are two Chinese species, *R. graciliflora* and *R. Farreri,* the latter with densely bristly stems up to 7 or 8 feet in height, and very small but numerous flowers followed by ovoid red fruits.

There remain seven small groups with from one to four species in each, most of them very distinct in character, and in various ways usually attractive or interesting. Three of them contain climbing, four non-climbing species. We will deal with the latter first.

7. *Luteae.* Only two species are included in this small section, related to the last but distinguished from it by the lack of bristles on the stems and often hooked thorns, the 5-7 (instead of 9 or more) leaflets, and the usually pinnate outer sepals. *R. lutea (R. foetida),* called the Austrian Briar but a native of Armenia, northwestern Persia and Kurdistan, and the rare and hard to please *R. hemisphaerica,* the double Sulphur Rose, first brought to Constantinople in the 16th century, but not found in the wild single state until 1834, near Angora in Turkey.

Parallel examples of a cultivated double form being known or introduced to Eurogean gardens prior to the original species are found in the Chinese *R. xanthina,* illustrated in John Lindley's Monograph of Roses in 1820, and *R. Roxburghii (R. microphylla),* first brought from Canton to Calcutta in 1823, thence to England. *R. hemisphaerica* is rarely seen now in culivation, and the wild type is scarcely known in gardens. *R. foetida,* one of the few roses with an unpleasant scent, also possesses a very beautiful double form in "Persian Yellow" (var. *persiana*), as well as the bud sport variety *bicolor,* "Austrian Copper," in which the inside of the flower is a copper-red color, the outside yellow. Boulenger (1935) believed *R. lutea* to be a hybrid between *R. pimpinellifolia* and *R. hemisphaerica.* Hurst considered its semi-sterility to be due, not to hybridity, but to long-continued cultivation since at least the 12th century around the shores of the Mediterranean.

From it, through the persistent work of M. Pernet-Ducher of Lyons, France, between 1883 and 1893, have arisen "Soleil d' Or" and all the Pernetiana roses, and since then many more which owe their brilliant coloring, glossy foliage, and in some cases also their poor constitution, lack of fragrance and susceptibility to black-spot disease to this native of the Near East.

8. *Sericeae.* The two species forming this group are immediately distinguished from all other roses by possessing only four instead of five usually white petals to each flower. Like *Pimpinellifoliae* and *Luteae* the flowers are normally solitary and have no bracts at the base of the stalk; the leaflets vary from 7 to 17 in number. The plants make large upright bushes 7-9 feet in height, with straight often flattened thorns in pairs below the leaves, as in the *Cinnamomeae,* and usually with bristles also. The fruit is top-shaped, red, yellow, or even bicolored; they ripen early (July) and soon drop.

The first species is *R. sericea,* introduced to England from the Himalaya in 1822; it has since been found to extend to southwestern China.

The second and much more common in cultivation, is *R. omeiensis,* from western China

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Pruning Roses

WALTER L. RICHARDSON*

BEFORE starting any project, it is well to ask the question why this project should be carried out. So, why prune roses? At the end of each growing season, when the leaves have fallen off, it is noticed that the growth of the various canes has not been uniform. The bush is often not well balanced, a quantity of small, weak twigs is in evidence. If the bush is not pruned in early spring, these defects will be greatly increased during the next year. Eventually the bush will grow very tall and will carry an excessive amount of wood. This will prevent the growth of new canes from the base, and the blooms will become smaller and poorer each year. This sad state can be avoided by judicious pruning.

However, all rose bushes should not be given the same treatment in pruning. There are several types of rose bushes with widely differing characteristics, and each type should be treated in a way which practice has shown to be most beneficial.

Roses of the native or wild type, such as Hugonis, Harrison's Yellow and Persian Yellow, should not be pruned, but only dead branches and canes cut out.

Tea roses, of which there are all too few, should not be pruned, except to cut out weak, dead or unripe wood. Let the bush grow high, wide and handsome.

Hybrid perpetuals, such as Frau Karl Druschki, should be allowed to grow high, and the bush to grow wide, keeping the center of the bush open. If the growth becomes congested, cut out the oldest canes. If some of the new canes show a tendency to grow exceptionally long, they may be drawn out horizontally in a curve, and tied to a trellis or stake. These canes will usually send up long laterals with fine blooms. When this type comes from the nursery, plant the bush as is, without pruning. Any canes which fail to grow tall during their second year may be cut out at the ground at the next pruning time. When this type of rose shows strong growth, it should be given an extra amount of fertilizer.

Hybrid Tea Roses, which make up by far the greatest part of the rose bushes grown in the garden, are usually rampant growers and may be pruned severely if the owner desires. However, the same style of pruning is not applicable to all hybrid Teas. Some of them resent low pruning and take two or three years to recover from it. With the great number of varieties on the market, and the diversified soils, understocks, exposures and treatment accorded roses, it is manifestly impossible to give rules or instructions which will cover all roses. The grower will have to find out by experiment and observation which treatment is best for each individual rose bush. If a grower has several bushes of any variety, growing close together, the bushes can be pruned in several different ways and the results noted. With only one bush of a variety, the process is much slower.

Pruning for show blooms is usually more severe than pruning for garden decoration or mass production of blooms. Low pruning varies from three to six inches and is practiced more for show blooms, leaving three canes to each bush. Other growers prefer the graduated type of pruning, that is, leaving three to five canes, the lightest canes being pruned about six inches high, and increasing in height to twelve inches for the heaviest cane. This is the type recommended by the writer.

A third style is called high pruning, and consists of leaving about four canes eighteen to twenty-four inches long. This style is best adapted for garden or hedge roses.

Climbing roses, on account of their habits which differ considerably from bush roses, require different treatment. Climbers bloom a couple of weeks earlier than bush roses and make their main growth at a different time. The new long canes usually make their growth during the middle of the summer, and send out the bloom laterals during the spring.

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* Mr. W. L. Richardson, member of a prominent engineering firm in Seattle, has been an ardent rose grower for many years. His interests extend, however, to many types of flowers and gardens.

Pruning should be done during December or early January, while the plant is dormant. Leave all the one-year and two-year-old wood, and the best of the three-year-old wood. This will improve the chances for recurrent blooming during the summer. All other canes should be removed down to the ground, or to the place where a new lateral cane takes off.

The polyantha type of rose bushes may be pruned in the spring or fall. They may be pruned high or low to suit the taste, or depending on the purpose for which they are used. If pruned in the fall, the old canes may be pruned down to the ground. This type of rose bush will usually flourish, no matter what you do to it.

In all types, if the bush grows upright, pruning should be done just above an outside bud. If the bush or canes grow in a horizontal manner, prune just beyond an inside or topside bud. In the horizontal growing type, judgment must be used to get a well-shaped bush.

Rose bushes, such as President Hoover, which are extra strong growers, should be pruned rather high. It is their nature to grow high and, if you prune them down low, they will spend a good deal of the season growing wood or canes, and will produce very few blooms.

In all of the foregoing, the grower must be observant of the results and use his judgment the following years. Hard and fast rules which apply to all roses cannot be given. This makes the work more interesting and stimulates the imagination. Where life or growing things are concerned, anything can happen.

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When pruning, never use a dull or poorly made shear. Always use a sharp, well-made shear that will make a clean cut. A dull shear will very often split the bark and crush the wood, thus leading to die-back. A still better scheme is to use a very sharp pruning knife after you have used the shear. Allow about one-quarter inch to be cut off with the knife. The end of the cane should be about one-quarter inch beyond the bud, and be left slanting away from the bud. Seal up the end of the cane with tree-heal or emulsified asphalt. This will help to avoid bleeding and prevent boring worms from entering the cane. Don't be alarmed if bleeding occurs as it is only natural.

The writer's explanation for the bleeding is this: at the time of pruning the roots are geared for the full size of the bush above ground. Then, suddenly you remove half or two-thirds of the bush and the sap has no place to go. The ends of the canes are opened up and the sap spills out. In time the roots readjust themselves and the ends of the canes seal up. Any sap which has escaped goes back to the soil and is again available to the roots.

Pruning should be done during the first two weeks of March, depending on the season. If the season is early, prune early, and vice versa. This timing of the pruning allows the top buds to grow and keeps the lower buds dormant. If a late frost should come only the top buds or leaves will be affected and you still have the lower buds unharmed.

Pruning rose bushes is somewhat like learning a trade. You don't learn all about it in one year. You learn by trying and making mistakes, and you never reach the stage where you know all about it. Your progress will depend on your ability to observe and reason. Rose bushes, like people, are subject to the influences which surround them, and these influences are ever-changing.

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A Condensed Outline of Rhododendron Hybridizing

Lester E. Brandt*

It is not known when the first rhododendrons were introduced into England, but the first record of bloom was *R. maximum,* in 1756.

There was no hybridizing to speak of, until about 1820, when *R. ponticum* was crossed with *R. nudiflorum* (by accident) to produce *R. Azaleoides,* which is still obtainable today.

There were a few other azaleodendrons produced about the same time, notably *Smithii aureum* and *Broughtonii aureum* (also still obtainable), but one of the first true rhododendron crosses that we know of was *R. altaclarense,* shown in 1831, of which some plants are still alive.

R. arboreum was used with *caucasicum, catawbiense, maximum* and *ponticum,* and from these crosses we have Nobleanum, Jacksonii, Cunninghamii and many others.

Sir Joseph Hooker introduced a number of plants from the Himalayas about 1850, of which the most influential were *Aucklandii, Thomsonii, Maddenii* and *cinnabarinum.* These, and some of the hardier ones, were used by John and Anthony Waterer, J. H. Mangles and other hybridizers of the time.

These few species and their hybrids were crossed and recrossed many times, and a number of the plants developed are still in commerce, such as Pink Pearl, Cynthia, Sappho, Doncaster, Marchioness of Lansdowne, Kate Waterer and so on, to the number of several hundred.

Loder's White was also developed at this time. It is a Griffithianum hybrid, probably raised by Mangles, as was Glory of Littleworth *(ponticum* x *mollis)*; both of these being four star plants today.

About 1900 there were a few plants raised by private parties, in Cornwall, among some of the more tender species. Some of them were Cornubia, Penjerrick, Cornish Cross, Shilsonii, Glory of Penjerrick and Helen and Robert Fox. Since most of these plants were in private hands, it took many years before very many of them got into commerce, some of them still being new and scarce over here.

Around 1910, C. B. Van Nes of Holland made a number of second and third generatin crosses among *arboreum* and *Griffithianum* hybrids. When these came into bloom, about 10 years later, he selected 200 plants out of 250,000, and destroyed the rest. Out of these 200 we have most of our popular hybrids today. Among them are Britannia, Dr. Wery, Unknown Warrior, Earl of Athlone, Mrs. G. W. Leak, J. H. Van Nes, C. B. Van Nes, Mrs. C. B. Van Nes, Van Nes Sensation, to name only a few.

In the meantime, the great plant explorers were sending seeds of many new species back from China and Burma.

The introductions of Wilson, Farrer, Forrest, Kingdon Ward and Rock have been written about many times, so I will list only a few of the most important. They were *haematodes, dichroanthum, repens, neriiflorum* and others in the *Neriiflorum* series; *Griersonianum, discolor, decorum, lacteum, facetum, Elliottii* and hundreds more.

At the time J. G. Millais published his second volume of "Rhododendrons" in 1924, very few of these had bloomed, or been crossed, and his conclusions were that not much more could be done to improve rhododendron hybrids: in other words, the end was in sight.

In 1929, Henry McLaren, who is now Lord Aberconway, showed *R. Vanessa (Griersonianum* x *Soulbut).* This was the first trickle of the flood that has followed. It would be impossible to list here all the crosses that have been made since then: anyway, most of them are listed in the various English and American yearbooks and handbooks.

Lionel de Rothschild was one of the foremost of the later hybridizers, and a few of his plants are now coming into commerce. Some of his finest are Romany Chai, Romany Chal, Lady Rosebery, Lady Chamberlain, Lady Bessborough, Bow Bells, Diva, Exburiense and hundreds more.

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* Mr. Lester E. Brandt, well-known horticulturist of Puyallup, Washington, is a member of the American Rhododendron Society.

Lord Aberconway's plants have been slower in becoming available, but those which can be obtained, such as Cilpinense, Fabia and Cowslip, are among the most sought after.

A number of years ago, most of the authorities agreed that hybrids should not be crossed, as the results were not worth the effort. That was true when they used any of the hardy oldtimers, as the seedling plants were generally uglier, and with smaller flowers than their parents, on account of their *catawbiense-ponticum-maximum* background. But now there is such a variety of first and second generation crosses among the very new Chinese species, that hybrids recrossed with other new hybrids or species produce astounding results.

There are, of course, bound to be failures, as when Lionel de Rothschild made his Romany Chai cross the second time, using the very same plants for parents, and had to destroy the seedlings as they were no good.

I have been able to bloom some of the choicer species, such as *repens, sanguineum, haematodes, didymum, neriiflorum* and *euchaites,* and have crossed them back and forth with other species and some of the newer hybrids such as May Day, Rubina, Fabia, Break of Day, etc. I have a large number of very fine looking plants, and hope for good bloom on a lot of them; but after reading about the experiences of other hybridizers, I won't be surprised to see some poor ones among them.

I don't think unproven crosses should be sold, unless the purchaser knows he runs a risk of getting poor plants, and is willing to take them on that basis.

I think there is a future for rhododendron hybridizing here on the Coast, as we now have most of the plants that the English used. It is only a matter of time until we can catch up to them, as our climate and soil are both better than theirs, and we don't have to contend with their late frosts.

I also think our native azalea, *R. occidentale* has possibilities for crossing, as it seems to have an affinity with certain of the Chinese species. I have crossed it with several evergreen rhododendrons, and have two-foot plants, two years old, with very distinct foliage. They should bloom in another year, and then I'll know for sure whether it is worth while, although the cross, *occidentale* x *macrophyllum,* made by nature in Oregon, is a gorgeous, fragrant plant.

I think we are fortunate here in having the Arboretum and an active Rhododendron Society to stage shows and meetings, and to collect information and experiences of amateur and professional growers. We also have the benefit of being able to learn from the 100 years and more of hybridizing that went on in England and Europe; and by reading of the mistakes that have been made, we can pass over anything that has given poor results.

There are any number of crosses that can be made that by all past results should be failures, but just as a pastime, it would be interesting to make them, as there might be some factor that would cause a change, as when Magor crossed *campylocarpum* with *Griffithianum* and got a plant with large deep red flowers that he named "Gilian" (called "Gina" over here, for some reason) and never was able to figure out how he obtained it.

There is one other thing I would like to mention. Since a rhododendron is a living thing, it stands to reason that it must have food to its liking to remain in good health. It

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Design in Plant Selection

G. Patrick Lowery*

WITH the advent of spring, the planting of new homes is contemplated by thousands of enthusiastic home owners. Some will be rewarded for their efforts and expenditures with varying degrees of success. Others with failure. Why?

Those who select plants that are hardy in their localities will be successful, at least to the extent that their plants will thrive if given proper care.

From the landscape architect's point of view, gardening success is largely a matter of design plus good care; but we find that comparatively few people have a practical interpretation for design. It is not the laying out of intricate patterns as generally supposed, but the determination of the character of an object to serve a certain purpose known in advance. Certainly our fundamental purpose in planting is to grow plants. No matter how attractive our garden pattern might be, if our plants fail to grow we have failed completely.

Landscaping involves a great many factors, all of which are important to success, but, perhaps the most vital one of all, that of plant hardiness, often receives the least consideration, and in many cases Nature is completely ignored. Disregard for the climatic preferences of plants probably results in more sickly plantings and the loss of more individual plants than any other single factor.

Greater care should be exercised in the selection of plants to be used in the Northwest than in any other section of the country of equal area, because of its wide variety of climatic conditions. The United States Department of Agriculture's zonal map for plant hardiness indicates nine different climatic zones for the entire country, six of which are found in Washington. Because of this fact, plants which thrive in one locality may die if transplanted a few miles distant where different conditions exist.

Nature designs her plants to thrive in the environment in which they are found. Some are intended for a moist atmosphere, others for a dry one. Some can withstand low temperatures, others cannot. North and south sides of trees differ in texture, which enables them to withstand different exposures of sun and cold. The hot sun and drying winds east of the Cascade Mountains are very likely to be disastrous to plants so designed as to be able to thrive in the Puget Sound area.

Plants represent life just as animals do, the only essential differences being that plants lack the power of locomotion, and that they possess the ability to convert inorganic substances of the earth into other substances upon which all animal life depends. When considered in this light, the wholesale waste of life through unwise selection of plants takes on a different aspect from that of merely being a waste of time and money.

The best way to select a list of plants for any planting is to take note of those which thrive in the immediate vicinity in which the planting is contemplated. Then contact your county agent or write to your state college regarding the plants of your choice.

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* Mr. G. Patrick Lowery is a newcomer to the ranks of landscape architects in Spokane, Washington, where he has just recently opened an office.

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Asiatic Magnolias

Mrs. O. B. Thorgrimson*

WHILE the American specie *M. grandiflora* and its fine hybrids undoubtedly tops all lists for its many excellencies and for sheer beauty, the Asiatic magnolias surpass our deciduous species in the color range of their flowers. The color of American magnolias runs from yellowish or greenish white, through ivory to the purest white. Asiatic magnolias vary in color from pure white, pink, lavender-pink, rose, rose-purple to the deep violet-red of *M. liliflora.*

The list of Asiatic evergreen magnolias is very meager, containing at best only three species: *M. Delavayi, M. nitida and M. Coco (pumila).* The first, introduced by Mr. E. H. Wilson in 1899, comes from Western China and reaches a height of fifty feet. The leaves are from ten to fourteen inches long, six to eight wide, dull green above and glaucous beneath. The flowers are cup-shaped, creamy white, fragrant, lasting only one day. The flower has six petals and is seven to eight inches across. It develops into a handsome evergreen tree, said to be somewhat tender.

M. nitida was found in 1919 by Reginald Farrer in Northeast Burma. He describes it as "a very tall evergreen tree, flowers intensely fragrant, creamy colored, fading in a central purple stain along each petal." Authorities agree this species is as near a Michelia as a Magnolia. The bark is dark, leaves narrow, 2½ to 3 inches long.

M. Coco (pumila), a shrub from Southeast China (Canton, Hong Kong and Formosa). It is grown in China and Japan as a pot plant. It blooms in May with fragrant white, ball-shaped flowers that open in the evening and fall off in the next morning.

The Asiatic deciduous magnolias are far more important in the number of species, variety of types, in color and in spectacular beauty than the American deciduous species. They range in size from the shrubby *M. stellata,* native of Japan, "common in the woods round the base of Mt. Fujiyama" to the forest tree *M. Campbelli* indigenous to the Eastern Himalayan region.

The first group to be considered consists of *M. stellata, M. Kobus,* and *M. salicifolia.* They are hardy and are distinguished by their many small, narrow-petaled flowers.

M. stellata is an evergreen tree in the south and a deciduous shrub in the north. The winter flower buds are gray and furry, giving a winter appearance of pussy willow buds. Branches may be cut and brought into gentle heat, where they open as any forced bloom. In the garden, the flowers appear by the middle of March, lasting into April. The plant, therefore, should have ample protection of walls or evergreen trees. As the flowers appear on bare branches, an evergreen background brings out the beauty of these pure white flowers. They have fifteen to eighteen narrow petals when fully opened, look like white stars, hence the name "stellata." In our garden, *M. stellata* produces a greater wealth of bloom than any other of our magnolias. There is a form called "water-lily" the petals of which are slightly longer and wider than the type and in our garden superior to the species. There are two other varieties, *rosea* and *rubra,* the darger shade being the better.

M. Kobus and *M. salicifolia* bloom at approximately the same time as *M. stellata* and have similarly formed white flowers which are not produced as profusely as those of *M. stellata.* They are both from Japan and form clean, attractive trees. The form *M. Kobus* var. *borealis* is the form to be grown, as it blooms at a much earlier age than the species and eventually forms a fine tree 60 to 75 feet tall. The leaves are ovate in form, 4 to 5 inches long, 2 to 2½ inches wide and in the autumn turn a most beautiful coppery bronze. The white flowers consist of six petals rather loosely put together and are about four inches across. Young trees produce but few flowers but as they grow older cover themselves profusely.

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* Mrs. O. B. Thorgrimson, a member of the editorial board of the Bulletin, herewith concludes her series of two articles on magnolias, the first of which appeared in our Winter edition.

The leaves of *M. salicifolia* are narrow, 3 to 5 inches long, 1 to 1½ inches wide, dull green above and glaucous beneath. The tree is slender and upright, growing to a height of 15 to 30 feet. Mr. Wilson says that the leaves when bruised emit a strong odor of camphor; "in fact, when I found it wild, I took it for a member of the camphor family." Millais says, "the bark or young shoots, when crushed, give off a charming scent like that of *Lippia citriodora* (lemon-scented verbena)." These two clean trees would make fine shade for a rhododendron planting.

The next group includes *M. Sieboldii (M. parviflora), M. Wilsonii, M. Nicholsoniana* and *M. globosa* var. *sinensis* and are found growing in Japan and Korea, on through China to the Himalayas. They are similar in that they form somewhat straggly bushes that shoot many branches freely from the roots. They are hardy and produce beautiful white cup-shaped flowers with the new growth.

M. Sieboldii (M. parviflora) has pure white flowers, fragrant when first opened, four to five inches across and, as Millais says, "stands and looks you in the face." The beautiful cup-shaped flowers of our *M. Sieboldii,* a seedling, hang face down from the ends of new growth. The leaves are ovate in form, dark green and smooth above the hairy beneath, four to six inches in length, three to five inches in width. The rapsberry red cone in the center adds much to the attractiveness of the flower. This magnolia blooms in early summer, *i.e.,* the last of May through June and early July, followed in autumn with seed pods having bright scarlet seed. These seeds germinate easily and the plant blooms when quite young. *M. Sieboldii* is eminently suited to a small garden as it does not exceed 15 to 20 feet in height. If permitted it attains great width but can be kept within bounds by pruning.

M. Wilsonii is related to *M. Sieboldii,* but has much narrower leaves, three to four inches long and an inch or more wide. It was found by Mr. E. H. Wilson in eastern Szechuan in 1904, growing among rhododendrons, silver firs, spruce and hemlock. It is shrubby in form and has pure white, fragrant flowers, saucer-shaped, three to five inches in diameter and having red stamens and carpels. The flowers are pendant and when produced in quantities should present a beautiful sight like a glorified *Halesia tetraptera* and should be placed so that one can look up into it from beneath. There is said to be a double flowered form of *M. Wilsonii.* It is not hardy at Arnold but is undoubtedly so in this vicinity as we have a young plant which took last winter's (1946) cold and snow hardily.

M. Nicholsoniana is also a "sprawling bush" from 12 to 20 feet in height. The flowers resemble *M. Wilsonii* in form but are larger, consisting usually of 12 sepals and petals. They appear with the leaves; are fragrant, white and cup-shaped. This magnolia was also a discovery of Mr. Wilson, and seed were sent to Arnold and thence to Europe. It is now usually regarded as a form of the latter species.

Perhaps the most striking of the Asiatic species, which blooms after the leaves have unfolded, is *M. hypoleuca,* found widely distributed in the forests of Japan. In general appearance it resembles the American species *M. tripetala.* The leaves are produced at the ends of the shoots and under favorable conditions the tree grows to a height of 80 to 100 feet. The leaves are large, from 10 to 18 inches long, 6 to 9 inches wide, green above, bluish white and slightly down beneath. The flowers greatly surpass those of *M. tripetala* in beauty, being bowl-shaped, 6 to 8 inches across, having the appearance of great water-lilies. They are creamy white with a ring of reddish-purple stamens, very fragrant, and have the great advantage of blooming in June. The cone-like seed pods are very conspicuous and beautiful when seeds are ripe. Millais says this magnolia should be grown on its own roots and is worthy of a far more important position.

M. hypoleuca is sometimes called *M. obovata,* a name that should be discouraged as it has been used variously and often and is a source of confusion. The word obovate, meaning roughly "pear-shaped," may be applied more aptly to many other magnolias.

Closely related to *M. hypoleuca* is the Chinese counterpart called *M. officinalis.* It was found in 1907 in Hupeh and Szechuan by Mr. Wilson and was at first thought to be identical but there has been found considerable difference in the color of the bark and in the fruit formation. The Chinese value this tree for its bar kand flower buds which are used medicinally.

The next and final group include those Asiatics which bloom before the leaves appear and include among their ranks the most spectacularly beautiful ornamental trees in the world. They are indigenous from Central China to the Himalayan region of Northern India. Coming from latitudes so far south, these magnolias have not the hardiness of those found farther north and their blooming period is unfortunately much earlier. A number of these rather tender magnolias are being grown in the Pacific Northwest with success, and if given the protection of ground elevations, hedges or evergreen backgrounds, will be able to display their marvelous blooms even as early as February, unless untimely frosts overtake them.

M. denudata and *M. liliflora* are the hardiest of this group.

M. denudata (M. conspicua) was introduced into England from China in 1789 by Sir Joseph Banks. In China it had been grown over a thousand years under the name of Yulan and it is a matter of regret this fine old name cannot still be retained. Its blooms appear in early spring (March and April) along with *M. stellata, M. Kobus* and *M. salicifolia.* In our garden it gives a repeat blooming season in July of smaller flowers. The flowers of the type usually seen are pure white, globe-shaped, fragrant and placed nicely on bare branches. This white form is comparatively rare in the wild state. "That most usually found is the variety *purpurascens,* the flowers of which are rose-red without, rosy pink within" (Wilson). Both white and colored varieties of the Yulan develop into handsome trees 40 to 60 feet tall with a trunk often eight feet in circumference. The flowers of this magnolia, cherry blossoms, and the blooms of peony moutan have long been favorite subjects of Chinese artists in paintings, porcelains and embroideries.

The purple or deep wine-red magnolia *M. liliflora,* is a hardy shrub with long straggling branches, blooming in May and June. The petals, four inches long, are relatively small and stand erect, a deep color outside and white inside, seldom opening wide and almost scentless. This species has a long blooming period lasting from mid-April through May into June, later blooms often occurring after the leaves appear. It is said not to have been found in the wild state.

While in itself it is not so beautiful nor desirable as many other magnolias it is famous for its remarkable children. Crosses with *M. denudata* are *M. Soulangeana, M. Lennei, M. Alexandrina, M. Brozzonii, M. alba superba* and a number of others all taking their color from *M. liliflora* and their fine form and fragrance from *M. denudata.*

The well-known *M. Soulangeana* is the hardiest and most floriferous of these crosses. When once established it grows rapidly and develops into a wide spreading tree which in early April is covered with flowers pure white inside, stained purple outside. Its blooming period continues several weeks and on a cheerless spring day a tree in full bloom presents a spectacle never to be forgotten. The original hybrid was raised in the garden of a French army officer, Chevalier Soulange-Bodin and flowered first in 1826.

M. liliflora var. *nigra,* a shrubby bush up to ten feet, is in general appearance much like *M. liliflora,* and has a longer blooming period than any of the *M. denudata* hybrids. It was introduced into England in 1861 by J. G. Veitch and it makes an excellent magnolia for the garden, requiring little or no side pruning as so many of the bushy forms do. The flowers continue in bloom from April into June and are a rich reddish purple outside and white inside.

M. Alexandrina, a close relative of *M. Soul-*

angeana, flowering about the same time but in many respects superior. The flowers are a better color, more of the rose shade predominating, although the size and color seem to vary from year to year. In this hybrid the leaves develop at the same time as the flowers.

M. Lennei is undoubtedly the most desirable of these hybrids and is particularly well suited to a small garden. It is bushy in form, with leaves up to ten inches in length and one-half as wide, dark green in color. In mid-April the great bowl-shaped flowers appear and last through May. Sometimes there is a second blooming in the late summer. The petals are from four to six inches long and four inches wide, of a rich rose-purple outside and white inside. There is a white form of which Millais says "I have even seen pure white *M. Lennei* forms which are so beautiful as to deserve a name."

It is necessary to stake and prune *M. Lennei* as the wood is brittle, as in all magnolias, and the huge leaves if weighted down by rain or early snow may cause limbs to be badly broken. Millais suggests that after the main stems have been well tied to stakes, the side branches should be shortened back in July to within four to six feet of the main stems. This treatment should be accorded *M. rustica rubra,* a seedling of *M. Lennei.* The same author says, "Except perhaps *M. Campbellii* at its best, nothing can exceed in beauty a well-grown plant of *M. Lennei.*" The plant layers easily and it is to be hoped our growers will propagate nothing but the true stock.

M. rustica rubra, as mentioned above, is a chance seedling of the beautiful *M. Lennei,* and originated in Belgium. The flowers are cup-shaped, considerably smaller and darker than those of *M. Lennei.* It also grows readily from layering.

Two magnolias we like very much in our garden are hybrids, *M. Veitchii,* a cross between *M. Campbellii* and *M. denudata,* or perhaps *M. Campbellii* and *M. Soulangeana,* and *M. Watsoni,* the parents of which are thought to be *M. Sieboldii* and *M. liliflora.* They are both suitable for small gardens and bloom late enough to escape damage from frost.

M. Veitchii was raised from seed by Mr. Peter Veitch at Exeter in 1907 and the first flowers appeared ten years later. This hybrid has proved to be a great addition to the magnolia family. The trees grow to a height of 30 to 40 feet, the leaves resemble those of *M. Campbellii,* the largest 10 to 12 inches in length, 5 to 6 inches wide. The fragrant flowers are solitary at the ends of naked twigs, nine petals six inches long, of waxy ivory-white, tinged pink on the outside, opening a little earlier than *M. Watsoni.*

M. Watsoni is a rather small tree with long straggling branches, blooming at the same time as *M. Sieboldii.* The flower buds are particularly beautiful, tinted a lovely soft pink, and open into large fragrant flowers pure white inside, with a circle of rosy red stamens. The branches grow low and are easily pegged down, but not so easy to root. Two out of five we layered grew, the other three rotted off. Both of these hybrids made a fast growth in our garden and bloomed while young.

The last group, consisting of *M. Campbellii,*

(Continued on Page Thirty-Eight)

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The Arboretum Bulletin

VOL. XI, NO. 1 SEATTLE, WASH. SPRING, 1948

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Special Notice

To keep memberships in the Arboretum Foundation in good standing, dues should be paid during the month payable. Memberships more than three months in arrears will be dropped and the BULLETIN will be discontinued.

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I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding 12 months.

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All memberships are non-assessable.

*Garden Clubs and Independent Arboretum Units formed after January 1, 1946, affiliated membership, $10.00 minimum. Special rate privileges to members of Affiliated Garden Clubs and Arboretum Units.

The schedule listed above has the following exceptions:

a. That members of Garden Clubs, affiliated with the Arboretum and having membership of not less than $10.00, shall be entitled to a $2.00 or Associate membership.

b. That members of Arboretum Units shall be entitled to a $2.00 or Associate minimum membership.

c. This schedule applies only to new memberships.

Notes and Comment

THE Arboretum Foundation has moved its offices into a new home at the Arboretum, with an entryway matching that of Mr. Mulligan's staff, which is housed right next dor.

Here, it is hoped, the Foundation can be of direct service both to the Arboretum and to the general public.

Our office space was made available through the generous action of the Arboretum Board at the University. Our occupancy followed completion of a new frame structure just north of the office building, where Arboretum crews are now housed, and where rest rooms for visitors have been established.

Our new address is care of The University of Washington Arboretum.

* * *

Acting upon recommendation of the Executive Committee, the Board of Directors of the Arboretum Foundation in January approved a plan by which the Arboretum will benefit more than heretofore from receipt of Foundation membership dues.

Under this plan the minimum annual dues for new Garden Club and Arboretum Unit members will, after April 1, 1948, be $5, instead of $2, as heretofore. Present Club and Unit members, and those whose memberships are received up to April 1, will be retained at $2, provided dues are paid within 30 days of each annual expiration date. A letter outlining this new policy has been sent to all member Garden Clubs and Units.

At the same time another letter has been sent to all Foundation members in the lower annual dues brackets, explaining briefly the current needs of the Arboretum and expressing our eagerness to meet these and other increasing needs as this great gardening enterprise gains momentum.

No attempt to require increased membership dues is contemplated, but, as indicated in the above-mentioned letter, it is hoped that many of our members will voluntarily change over to one of the higher classifications, outlined on this page.

Our mail box has brought some particularly interesting correspondence since our Winter issue, devoted to magnolias.

One such letter came from Mr. W. B. Clarke, nurseryman of San Jose, California, well known to Foundation members for his previous contributions to our horticultural knowledge. The other comes from Mr. Donald Wyman, of Arnold Arboretum, Harvard University, who is a frequent contributor to our BULLETIN.

Mr. Clarke writes:

"Your bulletin for 1947 just received clears up a minor mystery which is that we couldn't understand some recent inquiries on ultra rare Oriental magnolias about which so far as we knew no literature was available in this country. You certainly did a magnificent job and in my opinion a good symposium on one particular topic is of vastly more permanent benefit than scattering material on many different things.

"In the interest of accuracy I want to call your attention to one very common error. I mean that the so-called *Magnolia soulangeana nigra* is really *M. liliflora nigra.* I don't have Millais' book handy for reference but the report of the Conference on Ornamental Flowering Trees and Shrubs held in London in April, 1938, states on page 216 that such is the case. I hate to disagree with such a fine and well informed writer as A. T. Johnson but feel that he is wrong on page 9 in using the term *soulangeana nigra.* The same applies to Mr. Layritz' comment on page 10 but on page 14 Mr. Pitkin uses the correct name at the top of column 2. I might mention that we bought the so-called *magnolia soulangeana nigra* from different sources and what we received was always *M. liliflora nigra.*

"Finally, from the description given I feel entirely positive that what Mr. Layritz describes on page 11 as *M. liliflora purpurea* is surely nothing else than the plain lily magnolia, *M. liliflora.*

"Curiously enough in common nursery nomenclature *M. liliflora* is more often wrongly named than rightly. Even Armstrong had it wrong until I had the nerve to call their attention to it. But maybe the fact that I am on the committee for nomenclature of American Association of Nursery entitles me to 'butt in' occasionally."

Mr. Wyman's letter to Mr. Mulligan brings up a point raised here some time ago. On this point—the re-naming of our BULLETIN—we urge our readers' help.

Mr. Wyman writes:

"...I have been over your Arboretum and feel that you have a golden opportunity to grow more plant material than is possible in almost any place in the country other than the sub-tropical parts of the United States.

"Also I think congratulations are due you on the ARBORETUM BULLETIN which is becoming more and more interesting to many of us here in the East. I like very much the way in which you concentrate on one general subject in an issue, for you certainly can add a great deal to our horticultural information by so concentrating. One suggestion which was just made by our librarian, Mrs. Schwarten, was that the name, ARBORETUM BULLETIN, should be changed or added to in some way so that one would realize at a glance that it is connected with the University of Washington Arboretum, in Seattle, and not any of the 80-odd in this country and Canada. She even went so far as to make a suggestion: THE ARBORETUM BULLETIN—SEATTLE, although you can probably think of a far better one.

"I do not necessarily hold out for any such short title as the one which we adopted a few years ago, but we were forced to do so, instead of using the much more cumbersome term: *The Bulletin of Popular Information, Arnold Arboretum, Harvard University.* This is a mere suggestion from an easterner who thinks you are doing a splendid piece of work on the Pacific Coast."

Magnolia St. Marys - - A Dossier of Correspondence

(EDITOR'S NOTE: *Sometimes in the routine of editing, the stages by which article materials develop are no less interesting than the articles themselves. We feel that we have here a case in point. It started with a telephone call from editorial board member Mrs. O. B. Thorgrimson to Mrs. Elizabeth H. Hanley, known as a previous contributor to the* BULLETIN *and as a particularly enthusiastic gardener in a community of enthusiastic gardeners*).

LETTER NUMBER 1.

Dear Editor:

Mrs. Thorgrimson asked me to tell something about Magnolia St. Marys, as we are growing it at Hanleylands and find it, in our estimation, one of the most desirable of the hybrids of *Grandiflora.*

It has a pleasing upright form of growth, the leaves are well proportioned and well colored. With us our plants started blooming when two feet high. It makes a fairly rapid growth and blossoms generously throughout the season.

Mrs. Thorgrimson asked me to discover its history. The enclosed letters answer all the questions, and Mr. Hume's . . . is a real contribution to magnolia lore.

I hope you find this material valuable to the fine magnolia articles you are publishing.

Yours, with congratulations for a most interesting bulletin.

Mrs. Elizabeth H. Hanley.

LETTER NUMBER 2.

Dear Mrs. Hanley:

You are entirely correct in your assumption that Magnolia St. Marys originated at the Glen St. Mary Nursery in Florida and it was from them that we received our original plants. As a matter of fact, demand for this has been so great that in order to maintain a reasonable production we are compelled to buy grafting wood from them almost every year. It does bloom extremely young and seems very nice in all respects. We are unable to give you any particulars as to its origin but you should be able to get them from the Glen St. Mary people.

We are quite interested in the behavior of one of our own seedlings which we have had under observation for some time. It is at least as precocious as St. Marys but differs very strongly in its habit of growth. As you must know, St. Marys grows rather tall and slender while our seedling, which at present is known only as "F 40," is low and wide spreading. Our feeling is that there is room for both but we have not yet put it on the market although there has been some propagation.

Yours truly,
W. B. Clarke.

LETTER NUMBER 3.

Dear Mrs. Hanley:

Since I was actively connected with the Glen St. Mary Nurseries Company at Glen St. Mary, Florida, when the magnolia to which the name of St. Mary or St. Marys has been applied, Mr. G. L. Tabor, Jr., president of the company, has asked me to answer your inquiry of recent date and to give you what information I may have about its origin. So here it is:

> The Glen Saint Mary Nurseries is one of the oldest nursery establishments of the South. Nursery ventures come and go but it has continued and since 1888 it has been a vital force in the development of horticulture in Florida and adjoining areas. At first interest was largely in fruit trees, but as time passed a greater share of attention has been given to ornamental plants of various kinds—hollies, magnolias, camellias, azaleas, crepe myrtle, roses and many others. These have now surpassed fruit trees as nursery products.
>
> *Magnolia grandiflora* was one of the first ornamental trees grown at Glen St. Mary. It is a grand tree and for those parts of the United States to which it is adapted, it has no superior among broad leaf evergreens and few trees equal it. It is an interesting fact that the growing of nursery trees, both fruit and ornamental, has almost always started in the United States with seedlings and this was true of magnolias. Seedlings for lining out in nursery rows and growing were purchased

at first, later they were grown from seed at the nursery.

Among seedlings things stood out. They varied greatly in size, shape, branching and general appearance. There were beautiful specimens among them but there were others that were definitely inferior. It was difficult to select matched trees and many were such poor specimens that they had to be thrown away. It was realized that to secure a uniform product in quantity, it was necessary to resort to vegetative propagation. Both budding and grafting were tried but grafting was found best and the details necessary for nursery propagation were worked out. All of this took time for, although literature contains a certain amount of information, the details of production all the way from collecting seed to trees suitable for sale are seldom covered.

Having arrived at satisfactory methods of propagation, it became necessary to make a selection of a tree from which scions could be taken. With certain ideals in mind covering form, general appearance and beauty, a seedling specimen growing near one of the homes at the nursery was selected. It was a beautiful specimen with compact, well formed head and excellent foliage. This was the original tree of the St. Mary variety. Its origin is obscure. It may have occurred as a chance seedling, or it may have been an introduced seedling selected from those purchased. The variety has been propagated many years by grafting and there are beautiful specimens that prove the merit and value of the variety. It is not unlikely that in many instances these trees are in part on their own roots because grafting has been done just under the surface of the ground.

There are many noteworthy variations in native magnolias throughout the South and varieties showing these differences should be propagated and introduced; for as already stated wherever it may be grown successfully, there is no finer broad leaved evergreen tree. In season, that is, in spring or early summer—its blossoms are appreciated and valued by all who know them.

I hope this is what you want and that it will be helpful to you.

Wishing you the compliments of the season,

Sincerely yours,

H. Harold Hume, Provost and Dean,
University of Florida College of Agriculture.

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Third Annual Rhododendron Show

THE University of Washington Arboretum Foundation herewith announces its Third Annual Rhododendron Show, to be held at the Arboretum in May.

As in previous years, the show is accredited by the American Rhododendron Society.

At the conclusion of the Second Annual Show last May it was recommended that on first announcement of this year's enterprise two alternate dates, two weeks apart, be set, the exact date to be determined as the season develops. It was suggested that by so doing, exhibitors would have a good opportunity to display their best flowers.

Accordingly, the Third Annual Rhododendron Show will be held either the first or the third week-end—Saturday and Sunday—in May. The exact date will be announced by direct mail, daily newspapers and radio. Those interested may also obtain this information by telephoning the office of the Arboretum Foundation.

The schedule of classes follows:

SCHEDULE OF CLASSES

(Open means the class is open to nurserymen as well as amateurs).

Class

1. Open, mass plant exhibit Rhododendrons or Azaleas or both, arranged for effect; other plant material may be included provided Rhododendrons or Azaleas predominate.
2. Open. Group of specimen Rhododendron hybrids not to exceed three plants.
3. Open. Group of specimen Azaleas, not to exceed three plants.
4. Open. Specimen plant, hybrid Rhododendron.
5. Open. Specimen plant, species Rhododendron, excluding alpine types.
6. Open. Speciment plant, alpine species Rhododendron.
7. Open. Rhododendron trusses, hybrid or species, not to exceed five.
8. Open. One truss Fortunei series.
9. Open. One truss Neriiflorum series.
10. Open. One truss Thomsonii series.
11. Open. One spray Triflorum series.
12. Open. One truss Neriiflorum hybrid.
13. Open. One truss Griffithianum hybrid.
14. Open. One truss Thompsonii hybrid.
15. Open. One truss Griersonianum hybrid.
16. Open. One truss Dichroanthum hybrid.
17. Open. One truss Cinnabarinum hybrid.
18. Open. One truss Azaleodendron.
19. Best red hybrid. Single truss.
20. Best Loderi, variety must be stated. Single truss.
21. Best white hybrid (excluding Loderi). Single truss.
22. Best yellow hybrid. Single truss.
23. Best pink hybrid. Single truss.
24. Best Salmon or orange hybrid. Single truss.
25. Best blue or purple hybrid, not alpine types. Single truss.
26. One spray of any deciduous Azalea.
27. One spray of any evergreen Azalea.
28. Open. Best new American hybrid Rhododendron never previously shown at an American Rhododendron Society Show. Truss or flowering plant.
29. Open. Best imported new hybrid Rhododendron never previously shown at an American Rhododendron Society Show. Truss or flowering plant.
30. Open. Best new hybrid Azalea never previously shown at an American Rhododendron Society Show. Spray or flowering plant.
31. Arrangements in containers using Rhododendrons or Azaleas. May include other materials, but Rhododendrons or Azaleas must predominate. Subject to subclassification if necessary.

AWARD: Ribbons designating First, Second and Third Prizes.

REGULATIONS

1. The Show will be held in Seattle, Washington, at the north end of the Madison Street Playfield in the University of Washington Arboretum, on May 1 and 2, 1948, or May 15 and 16, 1948 (as noted in opening paragraphs of this article).
2. Exhibits will be accepted from non-members of the American Rhododendron Society as well as from members.
3. Exhibitors must have their exhibits ready by 8 p.m. April 30 (or May 14). Judging will begin at 9 a.m. May 1 (or May 15), when the tent will be cleared of all but essential helpers.
4. After the prizes have been awarded, nurserymen can expose their trade notices, catalogues, etc., with their exhibits.
5. The judges will be at liberty to withhold prizes where the objects are deficient in merit or to award a lower prize should they consider this desirable. The judges' decision will be final. Judges will take into consideration the beauty, quality and size of the truss. Novelty alone will not be considered as meritorious. On mass exhibits, Class 1, judging will be on the following basis: Forty-five per cent arrangement and general effect; 55 per cent quality of plants and blooms. No exhibitor shall receive more than one prize for the same variety in any one class.
6. Exhibitors will not be permitted to remove exhibits until after the closing of the Show.
7. Exhibitors desiring to exhibit in Class 1 will apply to the Arboretum Foundation for allocation of space. The minimum space to be allocated for these exhibits will be 150 square feet, the maximum 500 square feet, to any one exhibitor, subject to availability of space.
8. Every care will be taken for the protection of all plants, flowers, etc., but the Society and the Arboretum will not be responsible for any loss or damage.
9. Exhibitors are requested not to touch or handle other exhibits.

10. Any objection raised by exhibitors must be in writing to the Secretary of the American Rhododendron Society not later than 12 o'clock noon of the first day of the Show, for submission to the committee.
11. The term "spray" means a single stem or branch. The term "truss" means a single rachis, and therefore a cut group of select blooms tied up as a truss will be disqualified.
12. The following are regarded as alpine types of Rhododendrons. All members of these series:

    Boothii
    Campylogynum
    Cephalanthum
    Ferrugineum
    Glaucum
    Lapponicum
    Lepidotum
    Neriiflorum sub-series Forrestii
    Saluenense

    The following species:

    R. aperantum *R. Williamsianum*

13. The president, vice-president or treasurer of the American Rhododendron Society, or the general chairman of the show will have the power to disqualify exhibits which infringe on any of the above regulations. Subject to appeal to the committee. Their decision shall be final.
14. In case any Rhododendron species or hybrids do not fit any class, the judges will make a special class.

For additional information and reservation of space for mass exhibits, call the Arboretum Foundation, PRospect 0990, Seattle, before May 1, 1948.

Portland Rhododendron Show May 8 and 9, 1948. For information write Mr. George Grace, American Rhododendron Society, Box 8828, Portland 7, Oregon.

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ARBORETUM NOTEBOOK

This department is published for correspondence and pertinent comments by experienced growers on interesting plants and their culture. We solicit your questions but space limitation necessitates the publishing of only such answers as we deem of general interest.

RECENTLY I visited Mrs. N. J. Wiley's garden in Carmel, California, and in spite of the fact that her garden is in a warm southern climate there were many plantings that might be suggestions for our northern gardens.

Mrs. Wiley's garden is small, enclosed with a stone wall, but the great number of plants and shrubs were so well placed that there was a distinct feeling of intimacy rather than an overcrowded planting so often felt in a less carefully planned gardens.

Most of the shrubs were planted in large tubs, square and round, provided with small wheels which made them comparatively easy to move. *Rhododendron fragrantissimum* occupied several of these tubs, some of the bushes reaching the eaves of the house. This seemed an especially happy thought for our gardens as *R. fragrantissimum* is often a little tender in the Northwest and could be moved if planted in a tub.

Most of the camellias, loaded with buds and blossoms, were also planted in tubs, free from moles and easier to keep moist. There were tall, fibrous-rooted begonias espaliered against the walls, also in pots or boxes and in one place two large camellias of two shades of pink were separated by a stunning plant of Calla lilies planted in the ground. Along a wrought-iron railing edging a stairway from a balcony into the garden was a large bush of quince with branches wound through the railing. When I saw it, in January, only the blossoms were on the stems and the delicate tracings they made were breath-taking.

Succulents, a feature of every garden in Southern California, were planted with great care and I wonder why we do not use these plants more often in our northern gardens. They would be no more difficult to lift in the fall than begonias which we grow in such profusion. The succulents in Mrs. Wiley's garden reached out yard-long arms tipped with flowers of exquisite, indescribably beautiful colorings. Pelargoniums, with blooms somewhat suggestive of rhododendron blossoms, were planted among the rhododendron bushes to carry on the colors and bunched blossoms later in the season.

Besides the above named well-grown shrubs and plants, there was a huge "Cup of Gold *(Solandra guttata)*, a vining-tree over the sun-drenched roof, full of great yellow trumpets in January and in an angle of the house was a tree of Eugenia *(E. myrtifolia)* with graceful bunches of deep winey-purple berries. These last two were only to admire and leave in this warmer clime.

G. T. D.

* * *

As a garden takes on age its trees and shrubs tend to grow so large that they encroach on the perennials and annuals that at first were used to border their bases. Not only does the shade become too dense, but the hungry roots of the woody plants take up the available food and moisture.

Sometimes the gardener has grown old along with his garden, and feels that he is no longer able to provide care for herbaceous plants, deciding to depend on the more permanent plants of a woody nature not only for the decoration of his garden, but also for flowers for the house. For the first six months of the year there is a pageant of lovely flowering fruit trees, lilacs, rhododendrons, etc., but by late July, or certainly by August, the show is over.

Those with this type of garden should acquaint themselves with the Eucryphias, a group of fall-flowering trees and shrubs. This genus has four species and a number of good hybrids. Two species are from Chile, two from regions near Australia—all are native to countries south of the equator. The foliage is evergreen or nearly so. The shining deep green leaves are so attractive that one is willing to wait the few years required by the plants to reach blooming size. The plants have the fault of growing upright and of not fully clothing their lower branches. Since they prefer a cool root-run this failing is easily overcome by planting them behind low growing shrubs, permitting the tops full sun.

Best known, and available in some good nurseries in the Pacific Northwest, is *Eucryphia glutinosa* (formerly *E. rinnatifolia)*. It has beautiful four-petaled flowers, about three inches in diameter. They resemble the Hypericum in size and shape, but are snow-white with golden stamens. The flowers are usually produced in pairs. In the autumn the foliage takes on a lovely crimson hue. They are slow growing shrubs, and require some maturity before blooming, but when this period is reached, the plant is covered with flowers.

Another handsome species, also from Chile, is *E. cordifolia*. This tree will eventually reach 50 feet and is entirely evergreen. Its flowers are smaller than those of *E. glutinosa*, and are more sparsely produced. It blooms in mid-September.

A fine hybrid between *E. glutinosa* and *E. cordifolia* is *E. nymansensis*. It inherits all of the virtues and none of the faults of its parents. Its growth is more rapid, it blooms much younger. Its flowers are striking in appearance, and keep very well when cut. It has been an easy and satisfactory shrub growing on Bainbridge Island, where it has a western exposure and is very close to the beach.

E. Billardieri (E. lucida) is an evergreen tree from 30 to 50 feet in height. In its native Tasmania it blooms in February. It is the first of the genus to bloom in this clime, flowering in early July. It is a pleasing small tree with its one-inch white flowers, but it cannot be considered the garden ornament that the Chilean species are.

E. Moorei from New South Wales is also evergreen, and flowers on the current year's growth.

Its white blooms with white stamens appear in October, and it continues to produce flowers intermittently throughout the winter if the weather is mild, thereby extending the blooming season for a long time.

Eucryphias are usually propagated by seed, but root readily enough from cuttings taken in August.

There are several good hybrids, not yet propagated in sufficient quantities to be in commerce. All are so desirable that inquiries for stock may inspire growers to add them to their lists of first rate plants.

S. M. B.

* * *

The following list of shrubs, evergreen and deciduous, will provide a plant for almost any location in the garden, give variety in form, texture and coloring and insure blooms throughout the entire year:

Chimonanthus praecox (fragrans).
Viburnum tinus (laurustinus).
Daphne odora.
Exochorda racemosa.
Enkianthus campanulatus.
Pieris floribunda and *P. japonica.*
Philadelphus (Syringa) many varieties.
Deutzia gracilis.
Spiraea—many varieties.
Forsythia—several varieties.
Chaenomeles (Japanese quince).
Kalmia latifolia.
Abelia grandiflora.
Syringa (lilacs) many varieties.
Caryopteris incana.
Kolkwitzia amabilis.
Hydrangea hortensis and *H. Sargentiana.*
Althaea (Rose of Sharon) (Hibiscus).
Vitex macrophylla and *V. negunda incisa.*
Embothrium coccineum.

Roses, shrubby magnolias, camellias and rhododendrons have been taken for granted, the latter alone can supply flowers from late winter into midsummer.

M. R. T.

* * *

Almost anyone who knows *Romneya Coulteri* well would include it in a list of the "Best Ten" shrubs. It is sensational with its large white, poppy-like flowers with glorious yellow centers. It has a long blooming period and, while some people report it somewhat difficult in this climate, if properly grown it is not only easy but is invasive almost to a fault. This writer disagrees entirely with cultural directions one occasionally hears: "lean soil and no artificial irrigation." My experience is precisely the opposite: rich soil and plenty of water. Nothing in my garden attracts more interest. It is visible from the road passing my garden and when it is at its best certainly does stop traffic. It is a pity the blooms do not last well in water, for they are a truly gorgeous sight, but its value in the garden is ample justification. It needs room and plenty of it. For best results, nothing should be planted within ten feet of it. Our winters often kill it back some, which is no disadvantage for it flowers freely on all new wood and it frequently attains a height of ten feet. Short blooming periods are a great objection to many of our finest shrubs, but not so with *Romneya Coulteri.* It is in real beauty for a number of weeks.

Another one of my favorite shrubs is *Corylopsis pauciflora.* A mass of citron yellow, small bell-like blooms in early spring—simply loaded with buds as this is written in early December. Its period of greatest beauty is too short, but comes at a very welcome time.

At the head of my list for the best ten shrubs is *Camellia* "Lady Clare." It seems to be the general opinion that this is identical with *C. rosea grandiflora.* I was so thoroughly balmy over this plant that I bought half a dozen from Japan, but for no good reason in the world also included one plant to come with some other items I had ordered from England. The one from England is definitely superior to the Japanese importations. although they closely rival it. I disbud them every fall and every year put a two- or three-inch mulch of very well-decayed, screened, cow manure mixed 50-50 with pure leaf mold around them. C. j. "Rain in the Sun," while not comparable, is a very lovely thing but for the best results it must be carried through the winter in a cold house; too much trouble. Another real honey is C. *Danteren*—very much like Lady Clare but with more prominent stamens. Finlandia, a gorgeous ruffled white, is undergoing a try-out but whether it is going to do as well outdoors as it did in the greenhouse where it was propagated, I do not yet know.

Rhododendron mucronulatum is something to look forward to in the early spring. When happily domiciled it has a surprisingly long period of real beauty. It is one of this writer's favorites, although I cannot offer much of any help in the

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way of cultural directions. Some have thrived under my inexpert care, but on the other hand I have lost a couple of fair sized specimens for no apparent reason. Those that have given the best account of themselves have been almost crowded by other shrubbery but whether this is a characteristic I have not had enough experience to know.

An item appeared in a recent issue of the BULLETIN requesting cultural directions for *Meconopsis betonicifolia* var. *Baileyi*. In my garden, those sharing space with a number of rhododendrons have self-sown freely but such plants are not comparable with those grown as follows: Fresh seed is preferable. My own preference is to sow in September in a cold frame. A new batch of soil is supplied each year, say six inches, using fibrous loam, leaf mold and well-decayed cow manure. Keep gently moist and shaded as long as the sun is hot and it is our practice to leave the sash closed tight in frosty weather. Throughout the winter, however, unless a freeze is threatened, the frames are left open during the day and closed within a few inches to permit a circulation of air at night. It sounds fussy, but really they are hardy specimens and will take a lot of punishment. The plants are usually large enough, leaves about two inches long, by August or September to be placed in their flowering quarters, where best results will be obtained where a good variety of garden loam is available which has been well enriched with old friable cow manure, although less satisfactory results can be abtained by planting in March of the second year, some three months before they will bloom. An English gardener once told me that *Meconopsis* will thrive in soil that will raise good cabbages, and I understand that plenty of good old cow manure is the requisite for good cabbages. In my garden, *Meconopsis* has shown a distinct preference for shelter against hot afternoon sun. Mine seem to do best on the east side of a brick wall, but any light deciduous shade is suitable provided the plants do not encounter the roots of the trees creating the shade.

Anemone Hepatica. Those who were sufficiently forehanded to start, within the past few years, to grow this lovely specimen were rewarded in late February and early March by a gorgeous display of this beautiful plant. Blue, pink and white flowers in wild profusion, that is if they are properly grown. They revel in soil in which has been incorporated a plentiful supply of both leaf mold and screened, well-decayed cow manure. My practice is to divide in early September, which seemed satisfactory, but this year I intend to experiment by dividing in May as soon as the seeds have ripened. Quantity production, and I enjoy growing too many of them, is best effected by seeds which are sown in place as soon as they are ripened. The seed, by the way, must be gathered at just the right time, and it is very deceiving, for the little pods burst and the seeds are scattered while they are still green. Light shade seems to be their preference. I have always been grateful to the late J. D. Ross for educating me to an appreciation of this glorious little plant. —P. B. T.

* * *

It is great fun and rewarding as well to do a little gardening from the windows—I greedily want to see everything that comes into early bloom—witch-hazel, forsythia, corylopsis, Christmas and Lenten roses in variety, early primroses, blue and yellow in drifts, snowdrops, species narcissus, hepaticas, windflowers—anything at all that is more than a promise of spring is constantly gloated over and enjoyed from the house! Spring is the time to plan this delicious feast.

—OLD GARDENER.

* * *

Dear Notebook Editor:

A while back you invited comments on good gardening books which inspired me to bring up the following. I don't know whether you have it on your shelves, but I recently borrowed it from the Washington State Library and find it good and timely reading, regardless of its age. Hope you agree.

THE ENGLISH FLOWER GARDEN,
W. Robinson (London)

Knowing the loving care with which English gardeners for centuries have grown and observed the habits of ornamental plants collected from all over the world, and the similarity of English climate to our own, we can afford to pay careful respect to the comments of one of these gardeners whose book, although originally published in 1883, is still a living reference.

W. Robinson's English Flower Garden is standard reference material in libraries today. It is a sedate volume with many intricate wood engravings, and it is a surprise to find that the text is so very readable. The very definite opinions of the author on certain garden practices and abuses could as well have been expressed in 1948 as in 1883.

Robinson wrote this book because he disliked Italian style gardens and the use of plants as mere colored medium for intricate effects, like so many tiles to be set in a flat geometric design.

He thought the English climate was worthy of its own style of planting which would consider each garden individually; planting so as to enhance the contours of the land and make use of sweeps of lawn and the many lovely hardy shrubs and flowers—to make an artistic picture instead of a collection of stereotyped designs and artificial terraces.

He especially deplored the unpleasantness of the large parks and stylish estates of his day (and sometimes of ours too!) with their many statues "spotted all over the place," with their needless fountains (useful to provide humidity in hot Italian walls but foolish in a moist country with many natural watercourses), and their "incessant rustic work."

He hated the bedding plants which were so much "filler" and were constantly requiring to be dug out and replaced in geometric format, with "seas of labels."

He condemned the mutilating of lovely trees and shrubs to conform to a stylized plan.

Although we may be faintly amazed at his suggestions, such as the planting of winter jasmine to climb through and brighten a cherry tree, we must admit that his advice to protect the top-soil and to use weeds and leaves for mulch, instead of wasting them by burning, sounds like an up-to-date convert of Edw. Faulkner!

He has many suggestions for the interplanting of flower borders, developing wild gardens, pools and bogs, and encouraging trees and shrubs to develop their natural personalities in a dignified way, without being squelched by crudely voracious ones.

The second half of the book is a garden encyclopedia containing many drawings and much interesting information, including detailed discussion of such things as bamboos, bog and aquatic plants, climbing roses and vines, and even several paragraphs on how to propagate mistletoe and on what trees.

If you have ever read this book, read it again. If you never have done so, get a copy and enjoy meeting a new, quaint and useful garden friend.

—Jean Niemeier.

* * *

Three rhododendrons I like to see together:
R. augustinii.
R. keiskei.
R. ciliatum.

—E. M. F.

* * *

My ten favorite shrubs and trees:
Hamamelis japonica (Witch hazel).
Magnolia Grandiflora exoniensis.
Mt. Fuji Cherry.
Cornus Kousa.
Oxydendrum arboreum.
Daphne odora.
Skimmia foremanni.
Camellia (Madonna or Finlandia).
Rhododendron Earl of Athlone.
Sarcococca ruscifolia.

—Phyllis Ballard.

* * *

Book Review

Lilies for Every Garden, 1947, by Isabella Preston. Orange Judd Publishing Co., Inc., New York. 157 pages. Price $2.00.

MISS Isabella Preston is an authority of much practical experience and experimentation on the subject of lilies.

The book is written for the amateur gardener who is just starting out on the satisfying venture of growing lilies.

In simple terms Miss Preston gives hints as to where to plant, preparation of the soil, care of the bulbs before planting and cultivation. There are chapters on propagation and hybridization for those who would like to dabble more deeply in a hobby. Although lilies are not much troubled by insects and diseases these subjects are included in this small volume.

There is a section listing the more easily grown varieties readily obtainable from the lily specialist. It is accompanied with descriptive notes about them.

—Robert J. Hansen.

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Fourth Annual Camellia Show

FROM Mrs. Stephen M. Fowler, president of Amateur Gardeners, comes announcement of the Fourth Annual Camellia Show, presented by this club. The date is Saturday, March 27, through Sunday, March 28—Easter week-end—and the place, the Seattle Art Museum, in Volunteer Park, made available for the show by Dr. Richard Fuller, Museum Director.

General theme of the show is "Camellias for the Home."

Displays will be organized under two divisions.

The first of these — Cultural Classes — is open to exhibits by any person, but the entry must be grown by the exhibitor. This division is subdivided into four sections:

1. Camellia specimen blooms.
2. Collection of three or more named varieties.
3. Potted camellia plants in bloom.
4. Commercial exhibits (non-competitive).

The second main division — Artistic Arrangements—is open to exhibits by any Garden Club member. Sections of this division include:

1. Arrangements featuring camellias—Easter arrangements; camellias and flowering branches; arrangements for a man's den or office; a busy woman's arrangement; "Tea for Two"; dinner table arrangements; and corsages.
2. Garden Club exhibits, featuring camellias.
3. Oriental exhibits featuring camellias —open by invitation only, and will not be judged.

Committee chairmen include, in addition to Mrs. Fowler, the following: Mrs. Glen W. Tritle, general chairman; Mrs. Hugh I. Lewis, Mrs. E. M. Foisie, Mrs. George T. Henderson, Mrs. A. J. Johnson, Mrs. H. J. Kleinhans, Mrs. H. W. Rowland, Mrs. William Bock, Mrs. R. L. McGowan, Mrs. C. C. Haskell, Mrs. H. L. Stinson, Mrs. L. E. Karrer, Mrs. L. M. Lessey, Mrs. J. Swift Baker, Mrs. H. L. Stinson, Mrs. Roy S. Leighton, Mrs. H. L. White, Mrs. J. I. Florey, Mrs. Maude C. Hunt and Mrs. Dwight M. Walker.

* * *

Our radio program, "Your Arboretum," helped initiate the new studios of Station KOMO on February 28, the occasion of the station's introductory open house.

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Rose Species

(Continued from Page Twelve)

in 1901. The flowers, in May, are 1½-2 inches wide, sometimes ivory-white or even pale yellow, the hips are carried on thickened stalks colored like the fruit. The leaves of both species are attractive and fern-like.

9. *Minutifoliae.* This is a very ancient small group from southwestern United States. They refuse to hybridize with the true roses and hence should probably be considered, as did Prof. T. D. A. Cockerell, G. A. Boulenger and Dr. C. C. Hurst, as a separate genus—*Hesperhodos.* All four are low-growing thorny shrubs of dry or semi-desert areas, with 3-7 very small, wedge-shaped, Potentilla-like leaflets, large solitary rose red or sometimes white flowers in June and July, and prickly fruits which turn from green to dull red as they ripen.

H. stellatus and the closely related *H. mirificus* come from the mountains of New Mexico; *H. minutifolius,* the first to be discovered in 1882 in Lower California by C. C. Parry, C. G. Pringle and M. E. Jones at Encenada and Tantos Santos. Finally *H. Vernoni,* from Guadeloupe Mountain in southwestern Texas, in 1931. Both the first two at least have been cultivated successfully in the south of England and found reasonably hardy despite their southern origin. They should, of course, be given as sunny and well-drained a situation as possible in the Puget Sound or Portland areas, and are certainly worth their space in a garden where they can be so suited and where unusual plants are appreciated.

10. *Microphyllae.* Only a single species is known in this group, *R. Roxburghii (R. microphylla),* found in two slightly differing varieties, *normalis* and *hirtula,* in both China and Japan. As mentioned previously the cultivated double form was first introduced to Europe via India, about half a century before it was known to grow wild in Japan. The Chinese variety was described by Rehder and Wilson in "Plantae Wilsonianae" (1915) as abundant throughout the warmer parts of western Szechuan, being commonly used as a hedge-plant on the Chengtu Plain. All form stiffly branching, thick-stemmed shrubs eventually reaching 8-10 feet in height, the bark peeling off in strips like some of the birches. The leaves, of 9-15 narrow leaflets, are attractive; the sepals and flattened-globular fruits are prickly—an almost unique character in rose species which has given it the name of Chestnut Rose in France. There is a very striking hybrid possessing large pale pink flowers, between this species and *R. rugosa,* known as *R. micrugosa.* It first appeared at Strasbourg, France, but has been reproduced again artificially in England.

Finally there are the three small groups of climbing roses, *Banksianae, Laevigatae* and *Bracteatae,* or two only, if one follows Boulenger and unites the first two into one. All are Asiatic and most Chinese in origin.

11. *Banksianae.* The Banksian roses are well-known vigorous climbing plants in gardens in warm climates—the south of France and Italy, California, China, Japan, Madeira, etc. The stems are often without thorns, the leaflets 3-5, or sometimes 7, with free stipules falling at an early stage, flowers white or pale

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yellow, produced on two-year-old shoots in small dense umbels, the fruit small, globular, red, without sepals.

Single and double forms of both colors are known; the commonest in gardens is probably the double yellow, var. *lutea.* The original introduction to England from South China in 1807 was the double white. Wilson found the single form "very abundant in western Hupeh and eastern Szechuan from river levels to 1000 m. alt." and "trees 15 m. and more tall completely festooned with this rose," which suggests that a strong support is needed if the maximum growth and effect is to be obtained. Even in southern England it will reach 25 feet in such a situation.

A hybrid raised by the late Dr. Ragionieri in Italy between the single yellow *Banksiae* forma *lutescens* and Rose "Lamarque" is named "Di Castello." *R. Fortuniana* is a probable hybrid of *R. Banksiae* with *R. laevigata,* possessing solitary double white flowers nearly as large as those of the Cherokee Rose *(R. laevigata).*

Two other species in this group are *R. cymosa (R. microcarpa)* the most widespread of all roses in China, from the coast to western Szechuan, and the closely allied *R. Collettii,* from the Shan States and Burma. Both these have a compound inflorescence instead of a simple umbel, and white flowers. The former strangely, is very rare indeed in gardens or nurseries; it is doubtful whether the latter has ever been introduced to Europe or America.

12. *Laevigatae.* The Cherokee Rose, *R. laevigata,* is the sole member of this section, unless the red-flowered Chinese *R. lucidissima* be admitted as a genuine species and is not a hybrid with *R. indica.* Although named by Michaux in his "Flora Borealis Americana" in 1803, it is not a native of North America but of central and southern China, and of Formosa. From these countries it has spread all over the world, to Japan, South Africa, U.S.A., Europe, the Canary Islands and many other places having warm temperate climates. In Texas and some of the adjacent states it is a major weed problem.

The large, solitary white flowers, 3 inches or more in diameter, glossy evergreen leaves usually with three leaflets, the bristly flower-stalk and ovary, and the large pear-shaped fruit, 1-1½ inches long, very easily distinguish this handsome climbing species.

Several ornamental hybrids have been raised from it, notably the pink "Anemone" *(R. anemonoides* of Rehder), the striking "Ramona," the so-called Red Cherokee rose, with equally large carmine flowers, and "Silver Moon," one of the late Dr. van Fleet's products.

13. *Bracteatae.* In this, the last group to be mentioned, there are only two species, both sharply characterized by the softly hairy stems and flower-buds, the shining evergreen leaves (usually 7-9) with deeply fringed stipules like those of *R. multiflora,* large fragrant white flowers, solitary in *R. bracteata,* more often in small clusters in *R. clinophylla,* the flowers surrounded by a series of fringed woolly bracts which give them a very distinct appearance. *R. bracteata,* called the Macartney Rose from the name of an English ambassador to China in the late 18th century, is found wild in S. E. China, and Formosa, but has become naturalized in the southeastern United States. It is one parent of the well-known climbing rose "Mermaid," raised in England in 1918, and of the much less common "Marie Leonida," which has double creamy-white flowers.

R. clinophylla (R. involucrata) is an Indian species, from Bengal and the Himalaya, from Kashmir in the west to Burma and Assam in the east. It is seldom seen in cultivation, unless in warmer climates.

R. Lyellii, found in Nepal, is probably a hybrid between this and the Musk Rose, *R. moschata.* *(To be continued)*

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Horticultural Foundation

(Continued from Page Seven)

Certain other varieties are planted by the thousands in the shrub borders or naturaliztd in great masses in the fields and woods. They give continuous bloom for six or eight weeks.

The iris garden is outstanding in that the varieties are planted in color sequence according to the classification of the American Iris Society. This makes it a unique place to study the many different varieties.

The lilac collection includes the one hundred varieties especially recommended by the American Association of Botanical Gardens and Arboretums, and also novelties from such breeders as Havemeyer, Brand, Clarke, Preston and Skinner.

And Swarthmore has rhododendrons. Its collection includes the named varieties of the Catawbiense Group which are hardy in the East; the many new hybrid seedlings raised by the late Charles O. Dexter; and some recent hybrids of Joseph B. Gable. In azaleas, the collection is even larger, including all the hardy species, the Ghent and Mollis hybrids from Europe, the Kurumes and recent selections and hybrids of the U. S. Department of Agriculture. Planted in the woods are many thousands of seedlings from hybrid parents.

The annual chrysanthemum show of the Pennsylvania Horticultural Society is held at the College Field House, a place wonderfully suited for flower shows.

At any season of the year there are many plants of interest to be seen on the Swarthmore campus. The Scott Foundation is already fulfilling its purpose in demonstrating to the public the great number of plants formerly unknown to many, which are worthy of being included in even a small place. There remains much to be done, for Mr. Scott's vision lives on, increasing in value and beauty with each passing year.

* * *

The Arboretum has about 40 different types of Chaenomeles, the "Japanese Quince."

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New Insecticide Boon to Flower Gardeners

O. B. Howell*

A BRAND new spray material known as "Parathion" or "Thiophos 3422" is the most promising spray material yet discovered. This material has been tested by over 35 experiment stations in the United States. Experiments have been carried on in Spokane by Alex Lowe and Adolph Greener in the Manito Park Greenhouses; by Vern Mahn in his greenhouses, and by Mr. Waldo Berry in Bellingham. All of these men report a 100 per cent kill of red spider mite, aphis, white fly and mealy bug in the greenhouse.

Out-of-doors, other experimenters have found Thiophos 3422 to control rose leaf roller, tussock moth, thrip, wooly bear caterpillar on roses, mite, milipeds, sow bugs, cockroaches, ants—in fact, *almost every* pest that it has been used on has effectively been controlled.

We have long looked for a chemical that will kill both sucking and chewing insects. This, from all indications, is it. A good spray dope should have the following qualities: 1. 100 per cent kill; 2. Effective over a long period; 3. Wide range of safety to prevent injury to the plant; 4. Low soil toxicity; 5. Nonpoisonous to man. So far this new spray has fulfilled these five qualities except number 5. This is a highly poisonous material, but it can be safely used if proper precautions are taken. So far, all Washington experiments on ornamentals have simply been sprayed on the plants as rapidly as possible and as little time as possible spent in the greenhouse while the spraying was going on. Spraying when the temperature was over 75 degrees with the ventilators closed during application gave 100 per cent results. Unlike other sprays, Thiophos remains effective for over a week on the plant with some fumigation effects as the material vaporizes after this time.

Recent improvement applications by the chemical companies in combining Thiophos 3422 with the aerosal bomb have been proven to be the ideal method of use.

Chemically, Thiophos 3422 is spoken of as "diethyl paranitrophenyl thiophosphate." This material was discovered by the entomologists and chemists for the I. G. Farbin Corp. in Germany during the war when they were testing phosphorus compounds for war gases. After the war when American and English scientists were sent into the conquered countries, this material was picked up and made available to the United States through the Department of Commerce. Later this material became available for experiments through the American Cyanamid Company. Washington has done a great deal of work on its fruit insect problems through the research of Mr. Dave Brannon, Extension Specialist in Entomology, and W. S. O'Neill, Research Entomologist of The Tree Fruit Branch Experiment Station, Wenatchee. Other than the three mentioned greenhouses, no other ornamental control work has been done. New York State, through the Department of Floriculture at Cornell University, which was financially assisted by the New York Flower Growers, Inc., and by scholarships by Roses, Inc., and the New York Florists Club, has accomplished a great deal in perfecting the dosage and use for ornamental plants.

According to the most recent information, this spray material will be available in 1948 under the trade name already mentioned. It is a worthwhile one to use on your non-vegetable garden plants.

---

* Mr. O. B. Howell is extension specialist in ornamental horticulture at Washington State College, Pullman.

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Rhododendrons

(Continued from Page Sixteen)

has been thought in the past that since rhododendrons grow wild in the woods, they didn't need any extra food, and the result has been starved, sparse blooming plants in many places. If a rhododendron gets all the well-decayed *organic* food that it can assimilate, it will do very much better than if it has one dose of concentrated chemicals once a year, because even if the top of the plant isn't growing, it is not dormant as the roots are active and taking up nourishment.

As time goes on, more and more new hybrids will be exhibited at the shows, both in Seattle and Portland. This will give those who are not so well acquainted with them a chance to see what can be grown in the mild Northwest Coast district; and I am sure the interest in raising them will increase.

* * *

Some of the seeds of the Metasequoia, received through the Arnold Arboretum, have germinated in our greenhouses. This tree, heretofore supposed of prehistoric existence only, was found in the living state in Central China only recently.

* * *

Newly prepared land opposite the Garrett Memorial site adjacent to Rhododendron Glen has been planted with Pieris and Kalmia.

* * *

Rhododendron Glen is showing the season's first color, with *R. Sutchuenense, R. Praevernum,* R. Rosa Mundi and *R. Leucaspis* among others keeping early blossoming appointments.

One of the Arboretum's most interesting areas in the near future will be the Holly grove, along the Upper Road. It is now being developed. The Washington State Conservation Society has contributed many fine types of this tree.

* * *

Make your plans now to help make the Third Annual Rhododendron Show an outstanding success.

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Asiatic Magnolias

(Continued from Page Twenty-one)

M. mollicomata, M. Sargentiana, M. Dawsoniana and *M. Sprengeri* var. *diva,* bloom before the leaves appear. *M. denudata* and *M. liliflora,* already decribed, also belong to this group. The above five are mostly forest trees and are the most beautiful and rare in cultivation of the entire genus. Being endemic to the warmer regions of southwest China and northern India, their blooming season occurs very early and the early buds may be seriously injured by our February and March frosts, even though the trees are hardy here and make a rapid growth when once established.

Of this group *M. Campbellii* is the best known and is deemed by many authorities to be the most magnificent of all magnolias. It was discovered by Dr. Griffith in Bhutan and plants reached Great Britain 80 years ago. It grows into a large tree 80 to 150 feet in height, 6 to 12 feet in circumference. The leaves are from 5 to 12 inches long and the fragrant flowers, 6 to 10 inches across, vary in color from pale pink to deep rose. They are cup-shaped and stand upright and are colored inside the bloom as well as outside. Even though this magnolia was introduced into cultivation so many years ago, it is still very rare. There is a beautiful specimen in Golden Gate Park which "bloomed first in 1940 for the first time probably anywhere in the U. S." (See Mr. Eric Walther's description on page 17 of the Arboretum Bulletin, Winter 1947.) This tree was 18 years old when the flowers first appeared.

There are several reasons for this scarcity; it takes 18 to 25 years to come into bloom, a long time to wait! Those grown from seed vary greatly in color, many of them quite purple outside instead of the much-desired pink. Then the problem of grafting is not simple and the untimely blasting of flower buds have all militated against many being grown.

M. mollicomata, closely related to *M. Campbellii,* grows to a height of 60 to 80 feet, leaves six to ten inches long, four to five inches across. It is said to bloom comparatively early in life, 12 years from seed. The flowers, nine inches across, have the great advantage of blooming two weeks later than *M. Campbellii,* but do not hold themselves as well on the bare branches and are not so clear a pink in color as in the best forms of *M. Campbellii.*

M. Sargentiana, also closely related to *M. Campbellii,* was discovered by E. H. Wilson in 1908, who sent seed to Arnold Arboretum. He says it grows to a greater size than any other Chinese Magnolia and is one of the noblest of its family. The flowers are rosy pink, about eight inches across, and borne in great profusion. It blooms when quite young and is more hardy than the first two mentioned.

M. Sargentiana var. *robusta* differs from the type in the size of the leaves, which are longer and narrower, the fruit larger and some other slight differences.

M. Dawsoniana, another of Mr. Wilson's 1908 discoveries. The tree grows up to a height of 40 feet; is closely related to *M. denudata,* distinguished by its thick shining green leaves. It is said "to be like *M. Sargentiana* var. *robusta* — leaf different and flower not so good."

M. Sprengeri var. *diva,* is the most hardy of this last group. The flowers are smaller than the others, widely cup-shaped, placed beautifully upon the bare branches and of a fine pink color.

It is not easy to obtain many of these magnificent Asiatic Magnolias, but this should act as a spur to amateur and professional alike in finding new sources of supply. The difficul-

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ty in securing seed, the problems of layering and grafting, should act as incentives to active endeavor.

The imaginative and adventurous propagator will find problems here to keep him busy and interested for a lifetime, in striving to develop new hybrids that will have the splendid form, the purity of color of the best of the species and that will be better fitted to our colder climate.

It is to be hoped that many or all of the magnolias described in this article may find homes in the parks, along the boulevards, in the Arboretum and in our gardens.

* * *

Winter Work

(Continued from Page Three)

University, which have already begun to germinate.

Requested consignments of seeds have so far been dispatched to ten other arboreta or botanic gardens under the seed exchange scheme, chiefly in the U.S.A., but many more are anticipated from Europe and elsewhere overseas, since 175 copies of our seed list were sent out early in January.

Some useful books, both new and old, have been added to the Arboretum library during the past three months. They include R. B. Hough's "Handbook of the Trees of the Northern States and Canada" (1947), R. J. Preston's "Rocky Mountain Trees" (1947), "Illustrations of New Conifers," by H. Clinton-Baker and A. B. Jackson (1935), T. F. Cheeseman's "Manual of the New Zealand Flora" (1925), "Les Chenes," by A. Camus (1936-39), with two companion volumes of illustrations of oak species, "Rhododendron Handbook" (1947), and "The Species of Rhododendron," 2nd edition (1947).

Weather

The winter was very mild and wet until late in January when the following minimum temperatures were recorded in the Arboretum beside the greenhouses.

January 26	23° F.	January 28	22° F.
January 27	22° F.	January 31	27° F.

Another cold spell in the early part of February produced these minimum figures.

February 6	20° F.	February 11	22° F.
February 7	28° F.	February 12	24° F.
February 10	26° F.		

It is too early yet to state what permanent damage, if any, this will do to some of the more tender plants outdoors, but effects are already noticeable on certain *Ceanothus,* on the young shoots of *Lapageria rosea,* on *Swainsona galegifolia, Calceolaria violacea,* young plants of a double-flowered *Leptospermum,* and other similar shrubs around the borders outside the greenhouses and in the nursery. The December rainfall in Seattle was 6.26 inches (average 5.58 inches); for January, 3.97 inches (average 4.94 inches). *Camellia Sasanqua*—a fine single white form—continued to flower from early October until Christmas.

* * *

The Arboretum Unit Council sponsored a plant sale in the Arboretum on the occasion of its spring meeting. Proceeds benefited the Arboretum.

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